

DIABETES, SOCIAL SERVICES



04/PuA/H/92

# DEVELOPMENT PLAN

## DIABETES CENTRE

Airlangga University School of Medicine –  
Dr.Sutomo Hospital Surabaya

### Editors

Prof.Askandar Tjokrowiro, MD,PhD  
Prof.Rachmat Santoso, MD  
Prof.Seizo Iwai, MD  
Prof.Shigeaki Baba, MD

### Co Editors

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Hendromartono, MD  
Ari Sutjahjo, MD  
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Hans Tandra, MD  
All Members of Diabetes Centre

Surabaya, July 1, 1988

DEVELOPMENT PLAN

Diabetes Centre

Airlangga University School of Medicine - Dr.Sutomo Hospital Surabaya

This project is an outgrowth of the cooperation between the Directory General of the Higher Education (DGHE) and the Japan Society for the Promotion of Science (JSFS), implemented by Airlangga University School of Medicine - Dr.Sutomo Hospital Surabaya, in collaboration with other institutions in Indonesia as well as in Japan.

BOARD OF MANAGEMENT

Indonesia Side

Patrons : 1. Dean, Airlangga University School of Medicine Surabaya

(Prof. I G.N. Ranuh, MD)

2. Director, Dr.Sutomo Hospital Surabaya

(Karjadi Wirjoatmodjo, MD)

Coordinator : Prof. Rachmat Santoso, MD

Project Leader and Head of DC :

Prof. Askandar Tjokroprawiro, MD, PhD

Secretary : Ari Sutjahjo, MD

Staff Members: Prof.F.X.Budhianto Suhadi, MD, PhD

E.P.Saedibjo MD, MFH

S.P.Edijanto, MD

M.S.Kardjati, MD, PhD

B.P.Margono, MD, PhD

Hendromartono, MD

Erni Untung Sudjadi, Pharm.

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Japan Side

Coordinator : Director of ICMR

(Prof. Seizo Iwai, MD, DMS) (Kobe)

Project Leader :

Prof. Shigeaki Baba, MD (Kobe)

Core Members : Prof. T.Kaneko, MD (Yamaguchi)

Prof. Y.Hirata, MD (Tokyo)

Prof. N.Sakamoto, MD (Nagoya)

Members : Prof. N.Yanaihara, MD (Shizouku)

Prof. M.Yamaikido, MD (Hiroshima)

G.Okuno, MD (Itami)

K.Doi, MD (Kobe)

H.Taniguchi, MD, PhD (Kobe)

M.Otsuki, MD (Kobe)

K.Kaku, MD (Yamaguchi)

### INTRODUCTION

The Diabetes Clinic of the Departement of Medicine, Airlangga University School of Medicine - Dr.Sutomo Hospital, is located in the municipality of Surabaya, which has a population of approximately 3 millions; the former is the top referral clinic for diabetic patients in East Java, the largest province in Indonesia, which has a population of approximetely 30 millions (19% of the entire populaton of Indonesia), and whose area covers about 48.000 km<sup>2</sup>, with a density of 609 inhabitants per km<sup>2</sup>.

There are actually 13 State School of Medicine in Indonesia. In 10 of them Diabetes Clinics have been established namely in Sumatera (Medan, Padang, Palembang), Java (Jakarta, Bandung, Semarang, Yogyakarta, and Surabaya), Sulawesi (Ujung Pandang, and Manado).



While in Surakarta (Mid Java), Malang (East Java), and Denpasar (Bali), the Diabetes Clinics are being established.

The majority of the Indonesian population deal with agriculture in rural areas. Their staple food is rice. Carbohydrate consumption makes up roughly 70% of the total calories which is on average 1800 calori per day.

Based on previos surveys there will be 27.105 DM in the municipality of Surabaya, and 222.430 DM in East Java Province.

Our present activities has covered two main fields of DM :

1. Clinical Activities revealing : Clinical Data

1. Basic / Fundamental Data

2. Hospital Data

2. Epidemiological Activities revealing : Epidemiological Data (Community Data)

1. Municipality of Surabaya (urban areas) :

a. 6 - 20 yrs (18.118 samples)

b. > 20 yrs (13.423 samples)

2. Rural areas of East Java Province.

1.1. Basic / Fundamental Data

Various types of diabetes diets mentioned below had been scientific-ly investigated.

- The B diets (68 % cal.Cbh., 20% cal.Fat, 12% cal.Protein) and its variations : the B1, B2, B3, and Be diets

- The B1 diets : 60% cal.Cbh., 20% cal.Fat, 20% cal.protein

- The B2 diets : similar with B diets but enriched with Essential Amino Acids

- The B3 diets : consist of 40 gram protein per day, and the reminder is divided between Cbh : Fat with a 4 : 1 ratio

- The Be diets : "the free diet" for diabetic nephropathy type Be =



Stadium IV = Terminal Stage

- The metabolic effects of green beans and onions
- The Diabetic Diet for Moslem in fasting month
- etc.



2.2. Hospital Data (Dr.Sutomo Hospital Surabaya with 1.600 bed capacities, average overall inpatients 50.000/year)

A. Registered Diabetic outpatients in Dr.Sutomo Hospital :

- 1964 — 133 diabetic patients
- 1970 — 1081 diabetic patients
- 1975 — 2914 diabetic patients
- 1980 — 5654 diabetic patients
- 1984 — 8322 diabetic patients
- 1986 — 10278 diabetic patients

B. Morbidity : 0.16 - 0.72% (average 0.30%)

Mortality : 0.94 - 1.14% (average 1.05%)

C. Types of treatment : 70.3% OAD treated, 15% insulin treated, 14.7% diet treated.

Chronic complications : decreased sexual ability 50.9%, symptomatic neuropathy 30.6%, diabetic retinopathy 29.6%, cataract 16.3%, pulmonary tuberculosis 12.8%, coronary heart disease 10%, and diabetic cellulitis gangren 2.5%.

D. From 1980 - 1984 (with strict criteria for admission) : 2688 diabetics were admitted with death rate 19.6% (4.49% sepsis, 3.6% diabetic coma, 1.9% CVA, 1.5% myocardial infarction, and 1.4% chronic renal failure).

E. Classification of Diabetic Nephropathy (DN) based on Surabaya Criteria (DM with two times albuminuria in two-week-period, without urinary tract infection)



DN type B = Stadium I  
 DN type B2 = Stadium II  
 DN type B3 = Stadium III  
 DN type Be = Stadium IV = Terminal Stage.

Survival rates : type B more than 5 yrs, type B2 more than 2 yrs,  
 type B3 between 4-18 months, type Be between 2-5 months.

## 2.1. Urban Areas

1. The prevalence of DM in survey on the 6-20 year age group which was conducted on 18.118 school children of Surabaya Municipality (3 million population) was : 0,07% (6-10 years), 0.20% (11-15 years), and 0.6% (16-20 years).

The overall prevalence was 0.26%.

2. The overall prevalence of DM in the age group of more than 20 years was 1.43%, and it increased with age : 0.23% (20-29 years), 0.72% (30-39 years), 2.68% (40-49 years), 4.48% (50-59 years), and 5.33% (60 years and over).

3. Based on the data, a "Diabetes Map" of Surabaya Municipality was drawn, and there were three high diabetic prevalence districts (Genteng 2.93%; Tandes 2.29%; and Tambaksari 2.04%).

4. The average prevalence of DM in the age group more than 40 years was 4.16%.

## 2.2. Rural Areas

There are 4 nutritional areas in East Java, the results from 9 surveys showed the prevalence of DM in Surplus Area : 2.47% (sample size 3645), Marginal Area 1.05% (sample size 4663), Critical Marginal Area 1.41% (sample size 4467), and Critical Area 1.11% (sample size 3860); the average prevalence of DM in rural areas showed a prevalence of



1.47% (cumulative sample size 16635). Broad outline Diabetes Map of East Java enclosed.

### COOPERATING DISCIPLINES

#### Department of Internal Medicine

1. Prof. Askandar Tjokroprawiro, MD, PhD (internist - endocrinologist)
2. Hendormartono, MD (internist)
3. Ari Sutjahjo, MD (internist)
4. W. Sumarto, MD (internist - hepatologist)
5. Moh. Yogiartoro, MD (internist - nephrologist)
6. G. H. Santoso, MD (internist - rheumatologist)
7. B. P. Margono, MD, PhD (pulmonologist)
8. B. S. Pikir, MD (internist - cardiologist)

#### Department of Clinical Pathology

9. Prof. F. X. Budhianto, MD, PhD (clinical pathologist)
10. S. P. Edijanto, MD (clinical pathologist)
11. F. H. Sudewo, MD, MS (clinical pathologist)
12. S. Satjadibrata, MD, MS (clinical pathologist)
13. F. M. Judajana, MD (clinical pathologist)
14. Djoko Marsudi, MD, MS (clinical pathologist)

#### Department of Public Health

15. E. P. Soedibjo, MD, MFH
16. M. S. Kardjati, MD, PhD
17. Sunarjo, MD
18. Bambang Wirjatmadi, MD, MSc

**Department of Pathology**

19. Prof.Rachmat Santoso, MD (pathologist)
20. Soegeng Soekanto, MD, PhD (pathologist)
21. Faroek Hoesin, MD, (pathologist)

**Department of Obstetrics and Gynecology**

22. Agus Abadi, MD (obstetrician & gynecologist)

**Department of Dermatology**

23. Sunarko, MD (dermatologist)
24. Urip Suherman, MD (dermatologist)

**Department of Ear, Nose, and Throat**

25. M.S.Wiyadi, MD (otorhinolaryngologist)

**Department of Ophthalmology**

26. Gatot Suhendro, MD (ophthalmologist)
27. Moestidjab, MD (ophthalmologist)

**Department of Neurology**

28. Prof.Benjamin Chandra, MD,PhD (neurologist)
29. Troeboes Poerwadi, MD (neurologist)

**Department of Psychiatry**

30. H.M.Margono, MD (psychiatrist)
31. L.B.Suharjono, MD (psychiatrist)

**Department of Medical Rehabilitation**

32. Bayu Santoso, MD (physiatrist)

33. Thamrinsyam, MD (physiatrist)

Department of Child Health

34. Netty Pratono, MD (pediatrician)

35. Ratna Indrawati, MD (pediatrician)

Department of Oral Medicine School of Dentistry

36. Moh.Yusri, DDS,MS

Department of Surgery

37. Sunarjo, MD (urologist)

38. Dr.Med.Puruhito, MD (heart and vascular surgeon)

39. Dr.Med.P.Tahalele, MD (heart and vascular surgeon)

40. Djoko Roeshadi, MD,FICS (orthopedic surgeon)

Department of Anesthesiology

41. Karjadi Wirjoatmodjo, MD (anesthesiologist)

Department of Biochemistry

42. Prof.S.U.Purnomo, MD (biochemist)

43. Juniadi, MD (biochemist)

44. Edhi Rianto, MD (biochemist)

Department of Physiology

45. Prof.R.Soekarman, MD,PhD (physiologist)

Department of Microbiology

46. Setio Harsono, MD (microbiologist)

Department of Biology

47. K.Suhadi, MD (andrologist)

Department of Radiology

48. Benny Huwae, MD (radiologist)

49. Nifa Wahid, MD (radiologist)

Instalation of Nutrition Dr.Sutomo Hospital

50. Hariwitarti, MPH (nutritionist)

Instalation of Pharmacy Dr.Sutomo Hospital

51. E.U.Sudjadi (pharmacist)

Social Sciences

52. Sutandio Wignjosubroto, MPA

## OBJECTIVES

### General Objectives

To improve science, knowledge, and skill in the field of DM through activities in Service, Education, and Research for the welfare of mankind.

### Specific Objectives

1. To educate health personnel, related scientist, and patients.
2. To perform basic and applied research in the field of DM through experimental, clinical, epidemiological, and sociological approach.
3. To improve service qualitatively as well as quantitatively.

The desired results could only be obtained through cooperative involvement of other centres and institutions.





## FIVE-YEAR PLAN OF DC 1988-1993

The proposed five-year plan is based on the existing conditions describe below.

### Manpower

Scientists interested in DM, consisting of staff members of the School of Medicine and other disciplines within Airlangga University - Dr.Sutomo Hospital, and other institutions.

### Facilities

#### 1. Clinical Departments of Dr.Sutomo Hospital and Airlangga University

##### School of Medicine.

- Internal Medicine
- Clinical Pathology
- Pathology
- Radiology
- Neurology
- Ophthalmology
- ENT
- Nutrition
- Obstetrics and Gynecology
- Dermatology
- Psychiatry
- Medical Rehabilitation
- Pediatrics
- Surgery
- Anesthesiology

- Pharmacy

2. Basic medical sciences Departments of the School of Medicine :

- Physiology
- Biochemistry
- Biomedics
- Cytogenetics
- Pathology
- Pharmacology

3. Department of Public Health

4. Other disciplines within the Airlangga University :

- Pharmacy
- Mathematics and Natural Sciences
- Dentistry
- Veterinary Medicine
- Social Sciences

5. Other institutions

e.g. The Naval Health Institution

Scope of Activities

1. Service

Prevention, Promotion, Treatment, and Rehabilitation to :

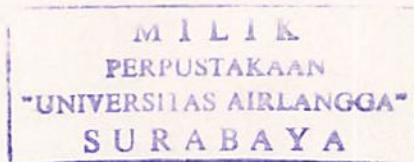
- inpatients
- outpatients
- community

Coordinator : Hendromartono, MD

Members : Benny Huwae, MD  
F.H.Soedewo, MD  
Djoko Marsudi, MD  
B.P.Margono, MD, PhD

## 2. Education

- Patients
- Community
- General Practitioners
- Trainees
- Nurses
- Technician
- Nutritionist
- Others



Coordinator : Prof.A.Tjokroprawiro, MD, PhD

Members : Prof.R.Santoso, MD  
Prof.R.Soekarman, MD, PhD  
Benny Huwae, MD  
S.P.Edijanto, MD

## 3. Research

Individual, group, and multidisciplinary

- Basic
- Applied : Clinical

Epidemiological

Coordinator : Prof.R.Santoso, MD

Members : Prof.A.Tjokroprawiro, MD, PhD  
Prof.F.X.Budhianto Suhadi, MD, PhD  
Prof.S.U.Purnomo, MD  
Dr.Med.Furuhito, MD  
E.P.Soedibjo, MD, MPH

## Pancreas Transplantation Team

### *Indonesia Side*

### *Japan Side*

Coordinators	: Prof.Rachmat Santoso, MD	Prof.Shigeaki Baba, MD
Leaders	: Prof.A.Tjokroprawiro, MD,PhD	Hiroshi Taniguchi, MD,PhD
Vice Leaders	: Hendromartono, MD	Y.Hara, MD
Secretary	: Ari Sutjahjo, MD	
Members	: Prof.F.X.Budhianto Suhadi, MD,PhD	
	F.M.Judajana, MD	
	R.Soemarto, MD	
	Made Sukahatya, MD	
	Abdus Syukur, MD	
	B.P.Margono, MD,PhD	
	Mulja Hadi Santoso, PhD,Pharm	
	Faroek Hoesin, MD	
	Soegeng Soekanto, MD,PhD	
	Hans Tandra, MD	

## SERVICE

patient

State Hospital

Private Hospital

## Diagnostic

### 1. Internal Medicine

- physical examinations
- interpretation
- data interpretation

## 2. Cardiology

- electrocardiology
- Doppler's examinations
- Holter's monitoring
- echocardiography

## 3. Pulmonology

- pulmonary function tests
- sputum examination
- bronchoscopy + bronchoalveolar lavage

## 4. Pediatrics

- physical examination
- interpretation
- data interpretation

## 5. Clinical Pathology

- screening tests: urine & blood examinations
- confirmation tests: OGTT, HbA1c, fructosamine, C-peptide, insulin, BT-PABA
- tests for complications: EUN, creatinin, blood gas analysis, blood electrolytes, etc.

## 6. Ophthalmology

- ophthalmoscopy
- fundal fluorescence angiography (FFA)
- tenometry
- visual field

## 7. Neurology

- electromyography
- electro encephalography

## 8. Radiology

- conventional x-ray



- ultrasonography (real time & sectoral)
- CT-scanning
- cardiac angiography

9. Ear, Nose, and Throat (ENT)

- audiometry
- tympanometry
- vestibular examinations — calori test  
— electro nystagmography

10. Dermatology

- mycosis examinations

11. Microbiology

- culture & sensitivity tests

12. Virology

- tissue culture

13. Biochemistry

- vitamin A/C
- carotene

14. Pathology

- diagnostics
- postmortem examinations

15. Andrology

- male infertility (sperm analysis)

16. Urology

- flowmetry, cytosmetry

B. Treatment

1. Internal Medicine

- ward
- emergency care unit

2. Cardiology

- ward
- ICU

3. Pulmonology

- ward
- ICU

4. Ophthalmology

- operative : \* cataract
  - \* vitrectomy
  - \* lens implantation
  - \* cryosurgery
- laser

5. Neurology

- ward

6. Nutrition

- diet therapy

7. Physiology

- exercise therapy

8. Surgery

- neurosurgery
- cardiovascular surgery
- orthopedics

9. Naval Health Institution

- hyperbaric therapy

C. Rehabilitation

1. Physical rehabilitation

- Department of Medical Rehabilitation
- Department of Physiology



## 2. Mental Rehabilitation

- Department of Psychiatry

### Outpatient

A. Dr.Sutomo Hospital Outpatient Department

B. Private Clinics

- diagnostics
- treatment as required (referred to inpatient department)
- rehabilitation

C. Primary Health Centres

### Promotion, Education and Prevention

- personal
- mass media
- books
- leaflets
- audiovisuals
- courses / CME (GPs, nurses, public)

through the Indonesian Society of Endocrinology (for scientists) and Indonesian Diabetes Association (IDA, for patients).

Development Plan Diabetes Centre

Author: Askandar Tjokprawiro

Year: 2008

Abstract

Diabetes Mellitus

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## PHYSICAL PLANNING OF DIABETES CENTER

### Ground Area

10000 m<sup>2</sup> — 4000 m<sup>2</sup> to be occupied by main building

1000 m<sup>2</sup> by satellite buildings

5000 m<sup>2</sup> by open space

### Floor:

4 — including basement and parking space

plus satellite buildings

### Directory

1. Basement
  - : receptionist
  - medical records
  - hospital administration
  - cafeteria
  - dispensary
  - medical rehabilitation
2. Ground Floor (I) : Outpatient Department / Diabetes Clinic (including all supporting disciplines)
  - internal medicine (endocrinology, cardiology, pulmonology, nephrology, rheumatology, etc.)
  - surgery
  - obstetrics/gynecology
  - pediatrics
  - ophthalmology
  - ENT
  - dermatology
  - neurology



- oral medicine
- nutrition
- radiology
- clinical pathology

Diabetes Education (capacity: 50)

Intensive Cardiac Care Unit (ICCU)

Emergency Care Unit (ECU)

Operating Room

Hemodialysis Unit

Duty Officer

3. Floor II : Special Diabetes Ward (gangrene, pulmonary tb, and other infectious complications)

General Diabetes Ward

(VIP, 1st, 2nd, 3rd, & 4th class)

4. Floor III : Research & Education

Staff Office & Cafeteria

Conference room

All floors are connected by lift & ramp; floor I and II are connected by escalator.

#### Satellite Buildings

utilities

security

maintenance

kitchen

CSSD

animal room

research laboratory



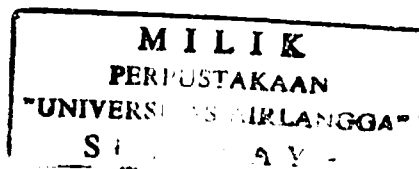
**Hospital capacities**

150 beds

General Diabetes Ward : 130 beds

- VIP : 10 beds
- 1st class : 16 beds
- 2nd class : 40 beds (2 persons/room)
- 3rd class : 40 beds (4 persons/room)
- 4th class : 24 beds (8 persons/room)

Special Diabetes Ward : 20 beds



**Manpower**

Medical: see listed experts of cooperating discipline

Paramedics and non medical personnels to propose to the Indonesia Government.

**Financial Arrangement / Backing**

- to be worked out later with the Indonesia and Japanese Governments.

- estimated cost :

\* area : Rp.

\* building : Rp. 7.500.000.000,-

\* supporting facilities : (not yet estimated)

soil preparation

new roads and parking lots

pedestrian

landscaping

drainage

electrical power line / trafos

gas supply

water supply

telephone and FAX

hydrant

\* Hospital equipment : Rp. (not yet estimated)

\* Research Laboratory Equipment : Rp. (not yet estimated)

### Management

Professional management responsible to DC Foundation, to be set up later from the members of Japan Consultants and DC Surabaya.

### Maintenance

Self reliance / self supporting with community involvement.

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