

NATIONAL ORTHOPAEDIC REGISTRY OF MALAYSIA (NORM)

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Hospital Raja Perempuan Zainab II,
Kota Bharu, Kelantan.

21.4.2009

How NORM come about?

- Mesyuarat Ketua-ketua Jabatan Ortopedik in July 2007.
- Steering committee was then form.
- Work started

STEERING COMMITTEE BOARD

1	Dr. Mohammad Anwar Hau Abdullah (Chairman)	HRPZ II, KB
2	Dr. Zulkiflee Osman (Co-Chairman)	HKL
3	Dr. Ahmad Tajuddin	HSNZ, KT
4	Dr. Se Te Boon Chong	Hospital Pulau Pinang.
5	Dr. Pan Chee Huan	HTE, Perlis
6	Dr. Mohamad Yazid b Din	HSB, Alor Setar.
7	Dr. Joehaimy Johari	HRPZ II, Kota Bharu
8	Dr. Saadon Ibrahim	HSI, JB
9	Dr. Mohd Zamzuri b. Mohd Zain	HTAA, Kuantan
10	Dr. Tan Boon Chong	Hospital Pulau Pinang.
11	Dr. Abdul Rauf Ahmad	HTJ, Seremban

ORTHOPAEDIC REGISTRIES:

1. DIABETIC FOOT/HAND
2. HIP FRACTURE

TO ESTABLISH A NATION WIDE ORTHOPAEDIC DATABASE THAT CAN

- ✎ Polish away the 'guess estimate' attitude - morbidity of hip fracture and diabetic foot/hand in country
- ✎ Focus on the real risk of hip fracture and diabetic foot/hand
- ✎ Determine the burden of hip fracture and diabetic foot/hand among Malaysian
- ✎ Promote effective treatment & prevention programs
- ✎ Facilitate research

NORM OBJECTIVES

- ✎ Determine the number and the trend of hip fracture and diabetic foot/hand in Malaysia.
- ✎ Determine the socio demographic profiles of these patients to better identify the high-risk group in our Malaysian population.
- ✎ Determine the efficiency of and adherence to current treatment guidelines
- ✎ Determine the cost burden to the nation and the cost-effectiveness of treatment and prevention programs

REGISTRIES

Hip Fracture Registry

- Initiated in year 2007
- Hospital incharge:
HSNZ, Kuala Trengganu
- Site data provider : 18 sites

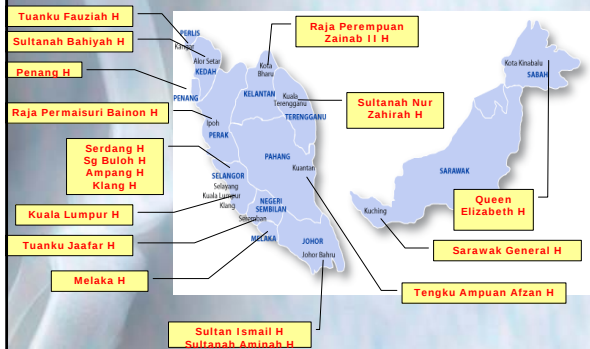
Diabetic Foot/Hand Registry

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GOVERNANCE BOARD (KIV)

	Name	Position
1	Datuk Dr. Noor Hisham bin Abdullah	TKPK Perubatan
2	Dato' Dr. Hj Ramlee bin Hj Rahmat	TKPK Kesihatan Awam
3	Datuk Dr. Azmi Shapie	Pengarah Perkembangan KKM
4	Dr. Lim Teck Onn	Pengarah Rangkaian CRC
5	Dr. Se To Boon Chong	Ketua Perkhidmatan Ortopedik
6	Datuk Dr Burhan Tan Abdullah	Pakar Perunding Ortopedik, HKL

18 participating Sites.....



SITE P.I.

	Investigator(s)	Clinical Site
1.	Dr. Zulkiflee Osman	Hospital Kuala Lumpur
2.	Dr. Faris Kamaruddin	Hospital Umum Sarawak
3.	Dr. Nahulan A/L V.Theva Rajah	Hospital Queen Elizabeth, Kota Kinabalu, Sabah
4.	Dr. Saadon Ibrahim	Hospital Sultan Ismail, Johor.
5.	Dr. Pan Chee Huan	Hospital Tuanku Fauziah, Kangar.
6.	Dr. Se To Boon Chong	Hospital Pulau Pinang.
7.	Dato' Dr Suresh Chopra	Hospital Bahiyah, Alor Star, Kedah.
8.	Dato' Dr. Ramanathan A/L Ramaiah	Hospital Ipoh, Perak.
9.	Dr. Thirumal	Hospital Tengku Ampuan Rahimah, Klang.

SITE P.I. (CONT.)...

10.	Dr. Basir Towil	Hospital Serdang, Selangor.
11.	Dr. Ng Yue Onn	Hospital Ampang, Selangor.
12.	Dr. Abdul Rauf Ahmad	Hospital Tuanku Jaafar, N.Sembilan.
13.	Dr. N.Sivapathasundram	Hospital Melaka, Melaka.
14.	Dr. Thevarajaan Karuppiyah	Hospital Sultanah Aminah, Johor Bharu, Johor.
15.	Dato' Dr. Premchandran A/L P.S. Menon	Hospital Tengku Ampuan Afzan, Kuantan, Pahang.
16.	Dr. Ahmad Tajuddin	Hospital Sultanah Nur Zahirah, Kuala Terengganu, Terengganu.
17.	Dr. Mohammad Anwar Hau Abdullah	Hospital Raja Perempuan Zainab II, Kota Bharu, Kelantan.
18.	Dr. Ng Swee Soon	Hospital Selayang, Selangor.

PROJECT PROGRESS

#	Project Activities	Date
1	Preparation of proposal	September 2007
2	Paper CRF drafted & revised	September 2007
3	Proposal approved (by sponsors) and funding	November 2007
4	Web development meeting	April 2008
5	Participation of all SDP secured	June 2008
6	Pilot study	July 2008
7	NORM national launch	August 2008

PROJECT PROGRESS CONT..

8.	1 st User Training	August 2008
9.	1 st NORM Steering Committee	September 2008
10.	MREC Approval for NORM: Diabetic Foot/Hand	November 2008
11.	2 nd User Training	November 2008
12.	Design a dummy table for data analysis	January 2009
13.	MREC Approval for NORM: Hip Fracture	February 2009
14.	2 nd NORM Steering Committee	March 2009
15.	Data Cleaning	Started early April 2009 and still in progress
16.	First report of data	Expected October 2009

SOURCE DATA PROVIDERS (SDP)

🦴 Currently 18 MOH Hospitals

🦴 Later others

- Private
- Universities
- armed forces

Number of date entered
June 2008 to April 2009
Diabetic foot/hand registry

1147

Number of date entered
June 2008 to April 2009
Hip Fracture

370

BENEFITS WITH E-NORM

🦴 REAL TIME
REPORT

🦴 YOUR OWN
CENTRE DATA at
FINGER TIPS

🦴 Compare YOUR
CENTRE STATISTICS
with NATIONAL
STATISTICS

DUMMY TABLES FOR e-NORM (Diabetic Foot/Hand)

1. Patient Listing	2
Table 1.1: Patient Listing Report	2
Table 1.2: Annual Census Overview List	2
2. Centre Statistics Report	3
Table 2.1: Total Diabetic Foot/Hand Patient Reported to NORM by SDP	3
Table 2.2: Total Diabetic Foot/Hand Patient Reported to NORM by Ethnic Group by SDP	3
Table 2.3: Total Diabetic Foot/Hand Patient Reported to NORM by Age Group by SDP	3
Table 2.4: Total Diabetic Foot/Hand Patient Reported to NORM by Gender by SDP	3
Table 2.5: Total Diabetic Foot/Hand Patient Reported to NORM by Location of Residence by SDP	3
Table 2.6: Total Diabetic Foot/Hand Patient Reported to NORM by Education Level by SDP	3
Table 2.7: Total Diabetic Foot/Hand Patient Reported to NORM by Occupation by SDP	4
Table 2.8: Total Diabetic Foot/Hand Patient Reported to NORM by Type of Diabetes by SDP	4
3. Registry Statistics Report	5
Table 3.1: Total Diabetic Foot/Hand Patient Reported to NORM by all SDP	5
Table 3.2: Total Diabetic Foot/Hand Patient Reported to NORM by Ethnic Group by all SDP	5
Table 3.3: Total Diabetic Foot/Hand Patient Reported to NORM by Age Group by all SDP	5
Table 3.4: Total Diabetic Foot/Hand Patient Reported to NORM by Gender by all SDP	5
Table 3.5: Total Diabetic Foot/Hand Patient Reported to NORM by Location of Residence by all SDP	5
Table 3.6: Total Diabetic Foot/Hand Patient Reported to NORM by Education Level by all SDP	5
Table 3.7: Total Diabetic Foot/Hand Patient Reported to NORM by Occupation by all SDP	6
Table 3.8: Total Diabetic Foot/Hand Patient Reported to NORM by Type of Diabetes by all SDP	6

BENEFITS CONTINUES...

- 🦴 CAPABLE of DOWNLOADING YOUR
OWN CENTRE DATA
- For further analysis, own performance
 - For your own research use
 - Presentation
 - Publication
 - Improvement of treating skills
 - State planning

RESULT

- Only aggregated statistical result will be reported by the registry.
- No result that can identify patient will be published.

Kuala Terengganu - Sultanah Nur Zahirah Hospital

Gender	No. of patient	Percentage
Female	17	43.33%
Male	21	56.67%
Grand Total	38	100%

Female = 17 & Male = 21

Pie Chart for Distribution by Gender

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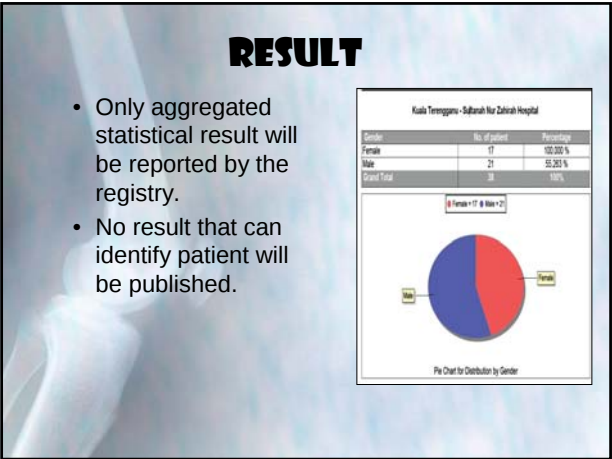
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COMPARE DATA

Gender	No. of patient	Percentage
Female	17	100.000 %
Male	21	65.385 %
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Female = 17 @ Male = 21

Pie Chart for Distribution by Gender

Gender	No. of patient	Percentage
Female	81	100.000 %
Male	48	61.865 %
Grand Total	129	100 %

Female = 81 @ Male = 48

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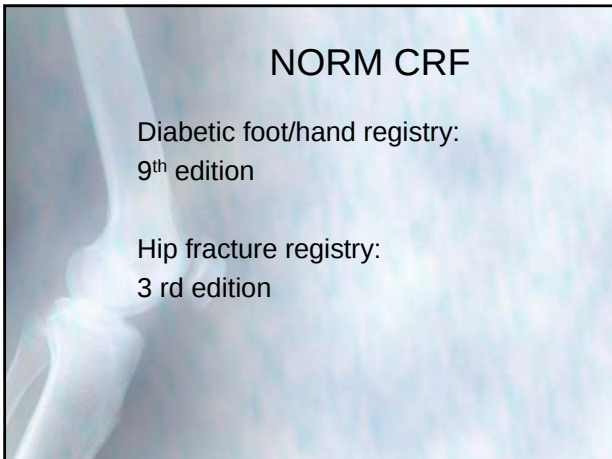
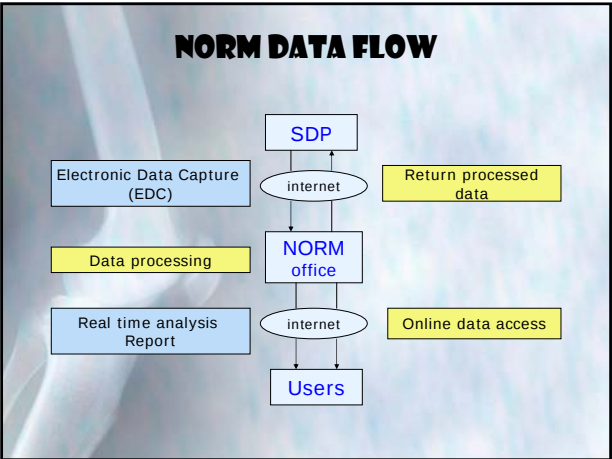
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graph TD; SDP[SDP] -- "internet" --> NO[NORM office]; NO -- "internet" --> Users[Users]; EDC[Electronic Data Capture EDC] --> NO; DP[Data processing] --> NO; RTAR[Real time analysis Report] --> NO; NO --> RP[Return processed data]; NO --> ODA[Online data access];
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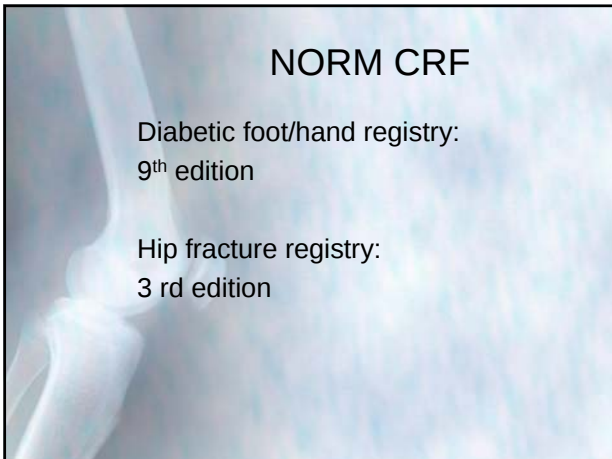
The diagram illustrates the NORM Data Flow process. It features a central vertical flow: **SDP** (top) connects to **NORM office** via **internet**, which then connects to **Users** via **internet**. To the left of the **NORM office** are three input boxes: **Electronic Data Capture (EDC)**, **Data processing**, and **Real time analysis Report**. To the right are two output boxes: **Return processed data** and **Online data access**.



NORM CRF

Diabetic foot/hand registry:
9th edition

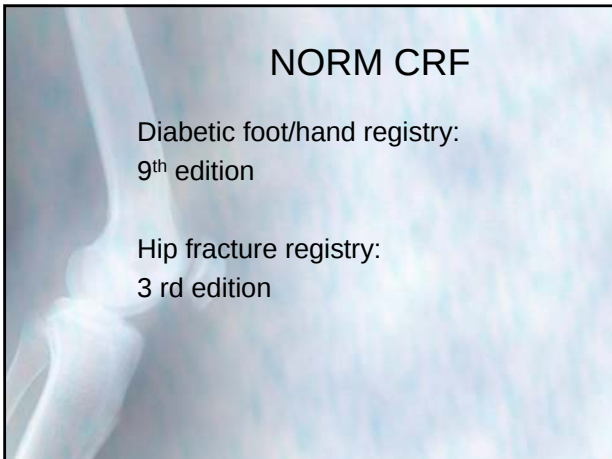
Hip fracture registry:
3 rd edition



NORM CRF

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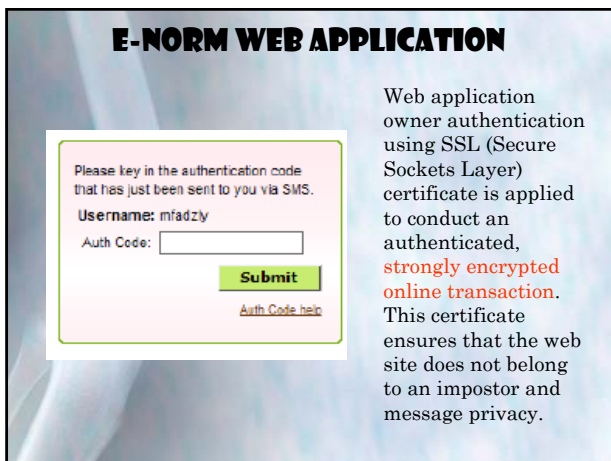
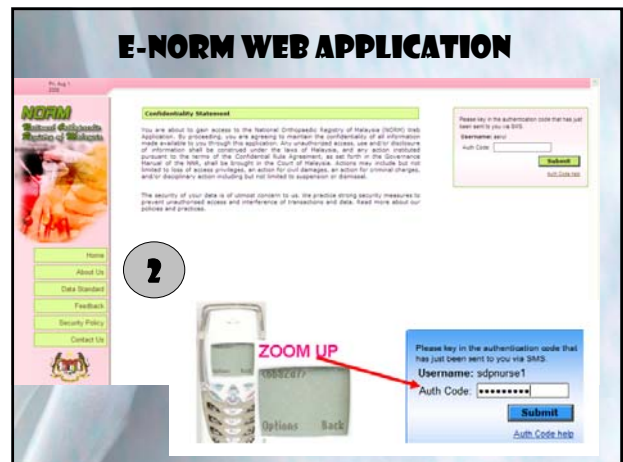
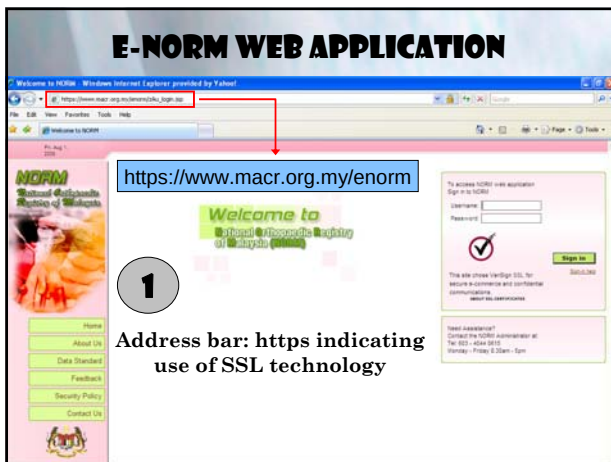


NORM CRF

Diabetic foot/hand registry:
9th edition

Hip fracture registry:
3 rd edition

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Problem face:

- Some sdp active, some less active
- Lack man power- data entry
- CRF- incomplete data