



Faculty of Tropical Medicine, Mahidol University

www.biophics.org

Fighting Infectious Disease with Informatics

Center of Excellence for Biomedical and
Public Health Informatics
(BIOPHICS)



Challenges & Difficulties in acquiring data

- Distance
- Infrastructure
- Language and disease definitions
- Collaborations
- Budget
- Personnel & Training



Experiences

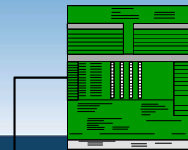
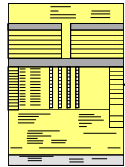
- Data Acquisition
 - Fax
 - Internet
 - Internet fax machine
 - Email scan as attachment
 - Electronic data capture
 - Web-based
 - Mobile phone
- Applications
 - Off-the-shelf software
 - Open source



Revised CRFs

QC Report

DataFax Paper Forms or Electronic CRFs are completed at the sites

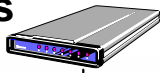


Problems are summarized in QC Reports and sent back to sites



Fax/Internet Fax/Scanner

Modems



DataFax Server



Data is validated until its get cleaned



Validated data by BIOPHICS

Clean data is exported

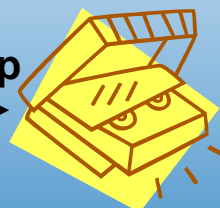


Sites are able to view CRFs online

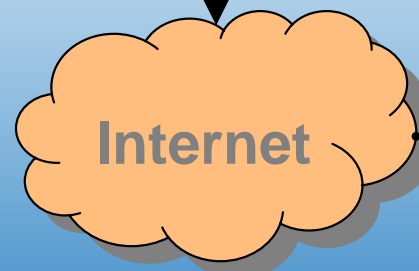


Disc Storage

Tape Backup



Internet



Workflow
for DataFax System



DataFax

iDataFax [amnat@dmcdf.dmc.inet.co.th] Cloned102 - List

File	File	Edit	View	Select	Show	Page	Field	Help													
10000	[100001,1,2] - 1 of 290								DFSTATUS	DFVALID	DFRASTER	DFSEQ	sid	initials	scrnum	adm_admcmpdt	adm_weakness	adm_suspsit	adm_hemipopia	adm_vsulnet	
001 - Demographic (DEM)	1	1	4	0623/0006003	1	100001	MOKI	0001	17/01/2549	1	1	2	1								
002 - Admission (ADM)	2	1	4	0623/0003003	1	100002	PARA	0002	18/01/2549	1	2	2	2								
003 - Follow-Up (FU)	3	1	4	0623/0004003	1	100003	TAJA	0003	19/01/2549	2	2	1	2								
004 - Treatment (TRT)	4	1	4	0623/0002003	1	100004	PAKU	0004	20/01/2549	1	2	1	1								
005 - End of Program (END)	5	1	4	0623/0005003	1	100005	BOPU	0005	10/02/2549	1	2	2	2								
006 - Final Conclusion (FC)	6	1	4	0623/0007003	1	100006	EKSI	0006	11/02/2549	1	2	1	2								
metadata - QC Reports	7	1	4	0623/0008003	1	100007	WIBO	0007	09/03/2549	2	2	2	2								
metadata - Reasons	8	1	4	0623/0008013	1	100008	LMSA	0008	17/04/2549	3	2	2	2								
metadata - Queries	9	1	4	0623/0008022	1	100009	KAKU	0009	21/03/2549	1	2	2	2								
	10	1	4	0627/0001003	1	100010	THYU	0010	01/05/2549	2	2	2	2								
	11	1	4	0623/0008036	1	100011	SAUE	0011	03/05/2549	2	1	2	2								
	12	1	4	0631/0001003	1	100012	CHBU	0014	11/05/2549	1	2	1	1								
	13	1	4	0627/0001015	1	100013	PUSU	0015	10/05/2549	2	2	3	3								
	14	1	4	0635/0002022	1	100014	KAWI	0016	19/06/2549	1	1	1	2								
	15	1	4	0635/0002035	1	100015	CHWU	0017	17/07/2549	1	2	2	2								
	16	1	4	0635/0002045	1	100016	DASU	0018	26/07/2549	1	2	1	3								
	17	1	4	0635/0003003	1	100017	TOBO	0019	07/08/2549	1	1	3	2								
	18	1	4	0639/0008097	1	100018	JISA	0021	09/08/2549	2	1	2	2								
	19	1	4	0639/0008107	1	100019	NOLI	0023	15/08/2549	1	2	1	3								
	20	1	4	0639/0008115	1	100020	CHPA	0024	29/08/2549	2	1	2	2								
	21	1	4	0643/0003003	1	100021	SUPU	0025	29/08/2549	2	2	2	2								
	22	1	4	0646/0008018	1	100022	MELO	0026	29/08/2549	2	2	2	2								
	23	1	4	0646/0008033	1	100023	PRSU	0027	06/09/2549	2	2	3	3								
	24	1	4	0643/0003014	1	100024	SOCH	0028	15/09/2549	1	1	2	2								
	25	1	4	0643/0003024	1	100025	BOTA	0029	27/09/2549	2	2	3	3								
	26	1	4	0646/0008045	1	100026	SAPA	0030	28/09/2549	1	2	1	1								
	27	1	1	0709R000K001	1	100027	SOMO	0031	27/09/2549	1	1	2	2								
	28	2	2	0709R000H001	1	100028	SARA	0032		999	999	999	999								
	29	1	4	0646/0008056	1	100029	SOSA	0033	06/10/2549	1	2	2	2								
	30	1	1	0708R0008001	1	100030	BBBB	0100	25/02/2549	1	1	2	2								
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	33	1	4	0623/0008045	1	110001	POPA	0001	27/02/2549	1	2	2	1								
	34	1	4	0627/0001026	1	110002	SOTH	0002	28/02/2549	2	2	2	2								
	35	1	4	0627/0001035	1	110003	PILI	0008	06/03/2549	1	1	2	1								
	36	1	4	0631/0001020	1	110004	SUUN	0009	07/03/2549	1	1	2	2								
	37	1	4	0631/0001031	1	110005	PRHI	0010	13/03/2549	1	1	2	2								
	38	1	4	0631/0001047	1	110006	SAPA	0011	21/03/2549	1	2	2	2								
	39	1	4	0635/0003012	1	110007	SOTA	0012	22/03/2549	1	1	2	2								
	40	1	4	0627/0001052	1	110008	PETE	0013	23/03/2549	1	1	2	3								
	41	1	4	0623/0008080	1	110009	PINI	0017	22/03/2549	1	1	2	2								

TSRR102 ADM (page 2) Week 0

Site: 10 Study No.: 0001 Initials: MOKI วันที่ตรวจข้อมูล: 14/01/2549

ส่วนที่ 1 : การตรวจประเมินร่างกายเบื้องต้น

1. Weakness Left Flight Bilateral

2. Supine to Sit able unable

3. Perceptual Dysfunction

3.1 Hemianopia No Yes Not testable

3.2 Visual Neglect No Yes Not testable

3.3 Tactile Double Simultaneous Extinction No Yes Not testable

3.4 Proprioceptive Sense Loss Impaired Normal Not testable

4. Communication Problem

	N/A	No	Yes	Reason/Description
4.1 Speaking Impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DYS AR THRTA
4.2 Listening Impairment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.3 Reading Impairment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.4 Writing Impairment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.5 Aphasia (motor, sensory, global)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

5. Dysphagia No Yes

6. Urinary/Fecal Problem

6.1 Urinary Difficulty No Yes

6.2 Urinary Incontinence No Yes

6.3 Fecal Incontinence No Yes

ส่วนที่ 2 : การเริ่มเข้าสู่โปรแกรมการฟื้นฟู

1. TMSE Score 12 Date 12/01/2549

2. QOL Score

2.1 Physical 13 2.2 Psychological 12 2.3 Social 10

2.4 Environment 14 2.5 Q1 3 2.6 Q26 4 OR Not testable

3. Anxiety Score 04 OR Not testable

4. Depression Score 11 OR Not testable

5. Barthel Score 11

6. Brunstrom Stages

6.1 Arm 6 6.2 Hand 5 6.3 Leg 5

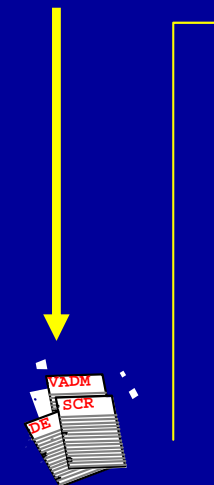
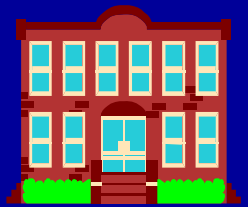
Version 1, 28-Feb-06



Development of Systems Managing Biomedical and Public Health Informatics

Work /Data Flow for Dengue Cohort Study

7 schools in Ratchaburi



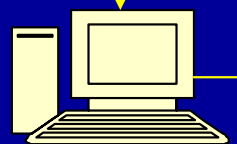
Volunteers Absenteeism Data

Ratchaburi PCMO



Calls or Home Visits to find out the Absenteeism Reasons/ illness data

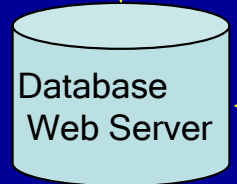
Update Absenteeism data to the Child Tracking Web-Based Application



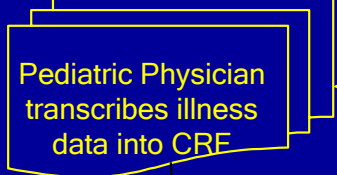
DMU & Pediatric Trop.Med. Ratchaburi Hospital

DMU Daily Monitoring Inconsistent Data Entry

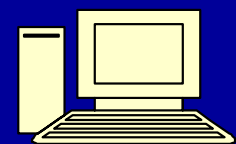
Pediatric Physicians monitor illness data



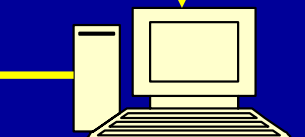
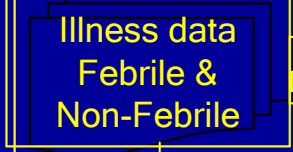
Generate Steering Committee Report



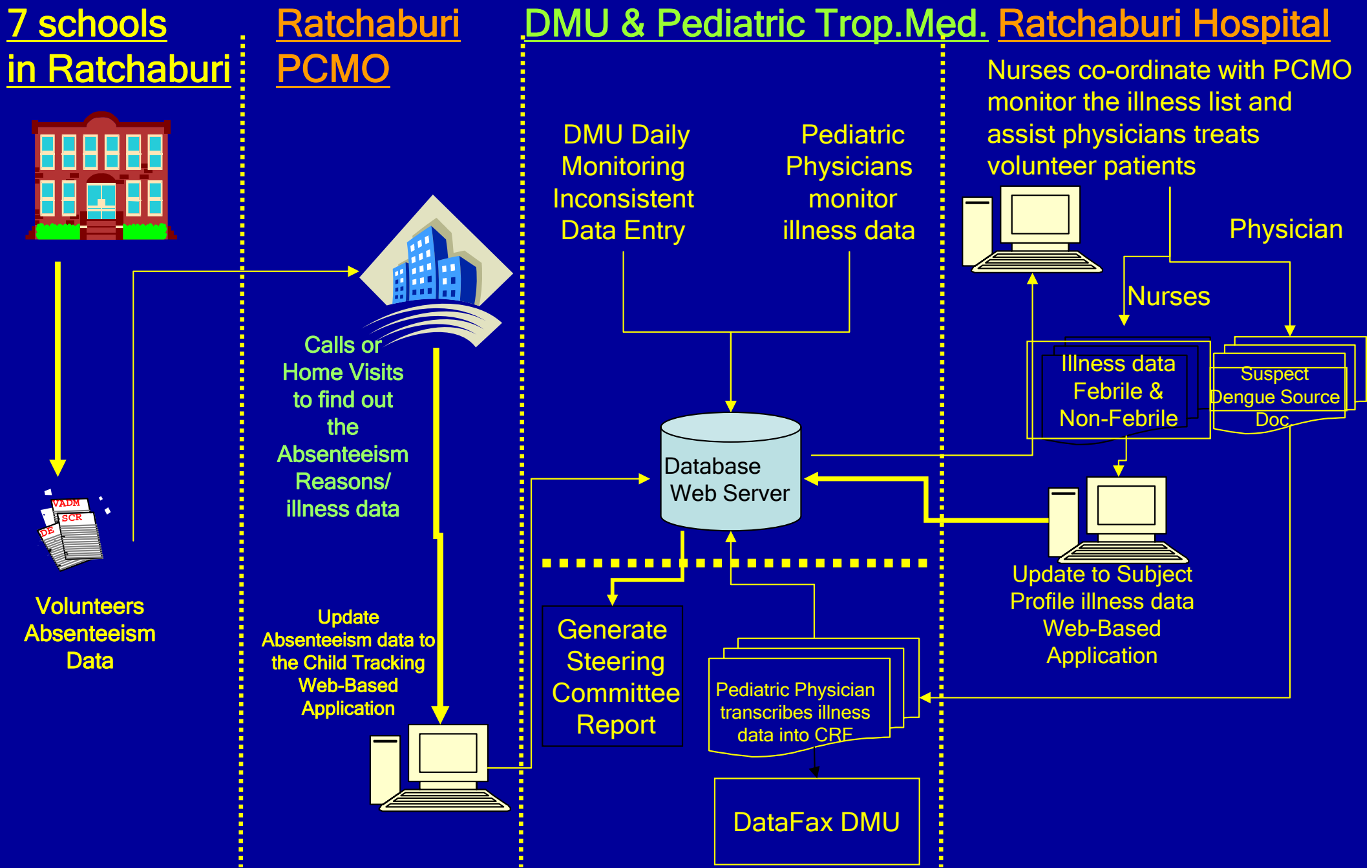
Nurses co-ordinate with PCMO monitor the illness list and assist physicians treats volunteer patients



Physician
Nurses



Update to Subject Profile illness data Web-Based Application



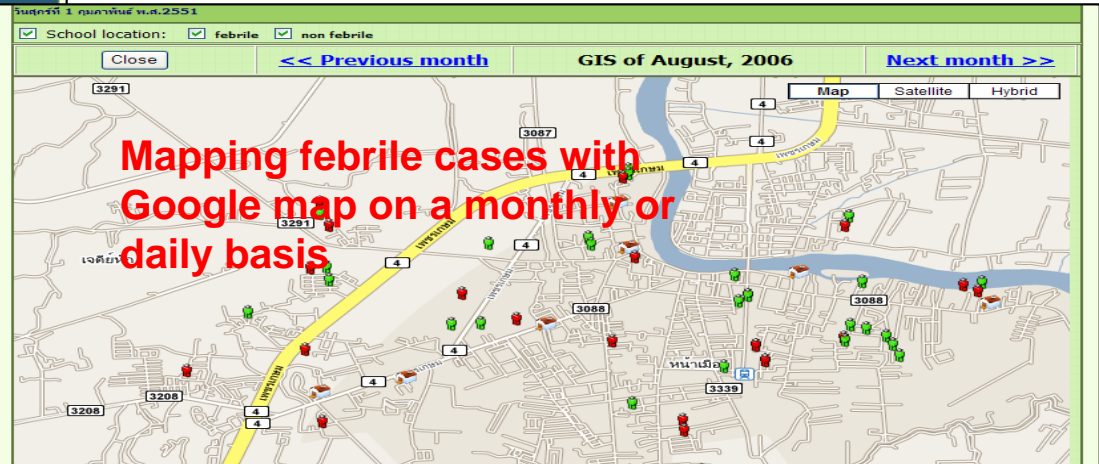


Patient/Volunteer Tracking System (Dengue Cohort)

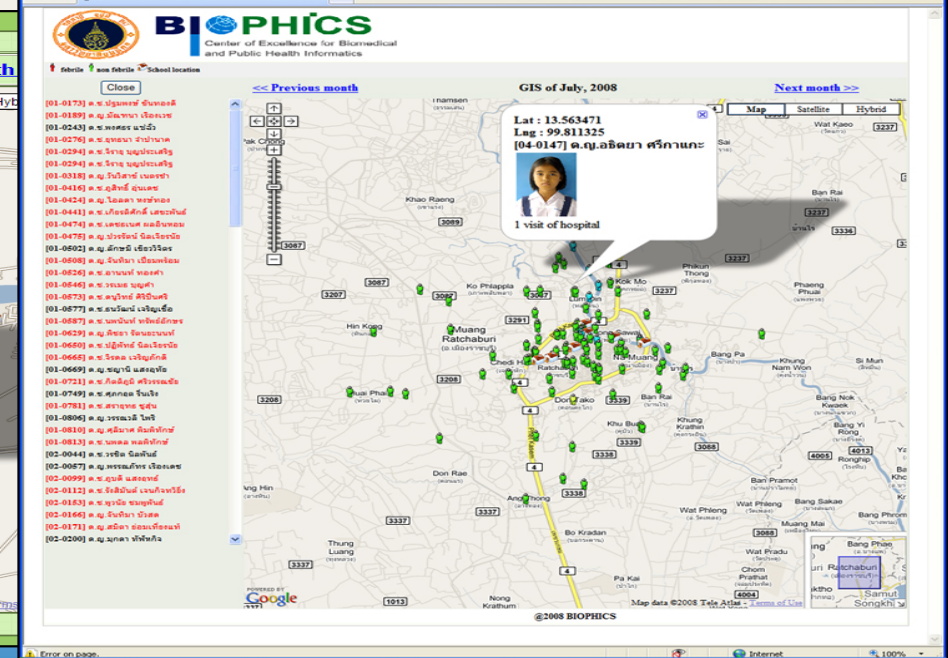
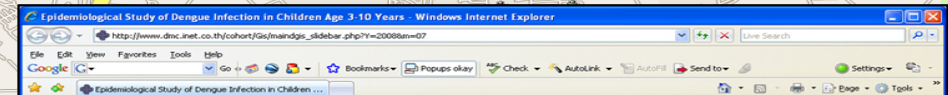
Report Month January, 2008

Period	Total blood draw	Blood drawing		Total new visit	Type of sickness	
		Blooddraw date #1	Blooddraw date #2		Febrile patient	Non febrile patient
01/01/2008	2	1	1	1	-	-
02/01/2008	10	1	9	3	-	1
03/01/2008	7	2	5	4	-	3
04/01/2008	6	5	1	8	1	4
05/01/2008	1	-	1	3	-	2
06/01/2008	3	3	-	9	-	3
07/01/2008	3	3	-	9	-	3
08/01/2008	8	8	-	6	-	1
09/01/2008	2	1	1	5	1	2
10/01/2008	-	-	-	2	-	1
11/01/2008	4	4	-	7	2	2
12/01/2008	2	2	-	3	-	2
13/01/2008	2	2	-	7	-	2
14/01/2008	2	1	1	6	-	1
15/01/2008	14	2	12	4	-	2
16/01/2008	1	1	-	9	-	3

Collection of febrile cases on a daily basis



Mapping febrile cases with Google map on a monthly or daily basis



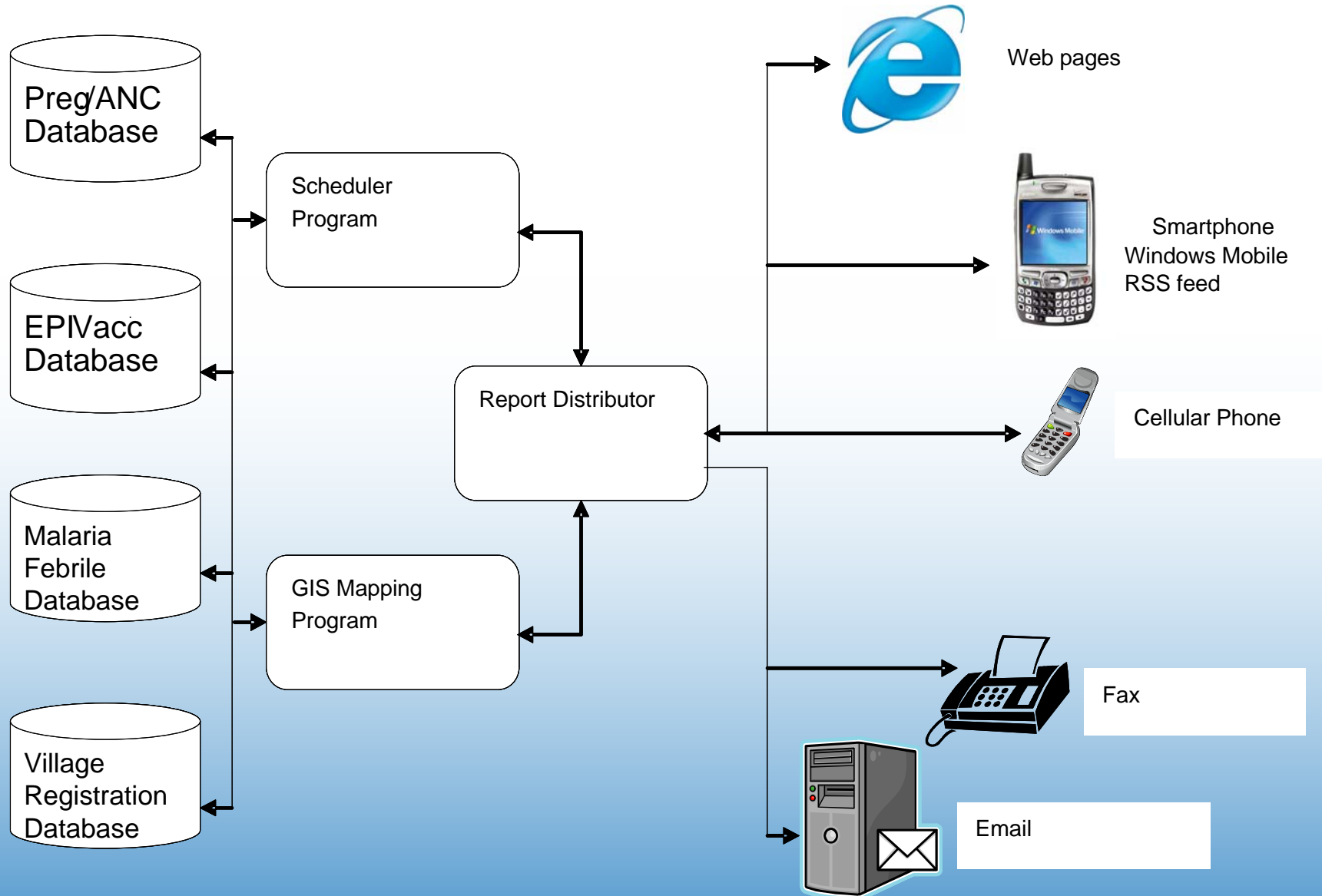
[07-0084] ด.ญ.ชาลิสา คงสุวรรณ

History!

View picture, medical history of volunteer & household environment (as per volunteer's consent)



Public Health Informatics Module





Drug Compliance System (Malaria Treatment Compliance)



Patient pr
analysis



ยินดีต้อนรับคุณBIOPHICS BIOPHICS

เข้าใช้งานล่าสุดเมื่อ : 04-09-2008 14:36:43

วันจันทร์ที่ 29 กันยายน พ.ศ. 2551

ยินดีต้อนรับคุณBIOPHICS BIOPHICS

เข้าใช้งานล่าสุดเมื่อ : 04-09-2008 14:36:43

วันจันทร์ที่ 29 กันยายน พ.ศ. 2551

IP : ,203.154.225.3,

กลับเน

ข้อมูลค



การรักษา

วันที่รักษา/

ไพรมาดวิน

กาวิน :

คลอโรควิน

Netuse :

Paracet :

Remark :

Schedule Visit

From : SN Go

MainMenu

Status : Today All Go

Item	SN	Name	PN	Blood Date	D3		D7		D14		D21		D28		D60		D90		Status
					Date Visit	Visit Date	Date Visit	Visit Date	Date Visit	Visit Date	Date Visit	Visit Date	Date Visit	Visit Date	Date Visit	Visit Date	Date Visit	Visit Date	
1	00006	นางคำมูน ตา มิ่ง	1131	16/09/2008	19/09/2008	-	23/09/2008	-	30/09/2008	-	07/10/2008	-	14/10/2008	-	15/11/2008	-	15/12/2008	-	ระหว่าง ติดตาม [16/09/2008]
2	00130	ด.ญ.กชกร (แพริ)อังกศลา พนมบริรักษ์ (ปะเป็ง)	1130	17/09/2008	23/09/2008	-	27/09/2008	-	04/10/2008	-	11/10/2008	-	18/10/2008	-	19/11/2008	-	19/12/2008	-	ระหว่าง ติดตาม [16/09/2008]
3	00130	ด.ญ.กชกร (แพริ)อังกศลา พนมบริรักษ์ (ปะเป็ง)	1130	16/09/2008	23/09/2008	-	27/09/2008	-	04/10/2008	-	11/10/2008	-	18/10/2008	-	19/11/2008	-	19/12/2008	-	ระหว่าง ติดตาม [16/09/2008]

Total Schedule Visit 3 Person



Center of Excellence for Biomedical and Public Health Informatics (BIOPHICS)

3-4th Floor The 60th Anniversary of His Majesty the King's Accession to the Throne Building.
Faculty of Tropical Medicine
420/6 Rajvithi Road, Bangkok 10400
Tel.(+66) 2354 9181-6 Fax.(+66) 2354 9187



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ปรับปรุงข้อมูล

**** หมายถึง ควรสอบถามข้อมูลเพิ่มเติมจากที่สดเพื่อประโยชน์ในการรักษาและติดตาม ****

istory



Healthcare Service Monitoring System (ANC-EPI Coverage)

ANC_EPI

ส่งข้อมูล

11857 : Syn. Data Complete...
11862 : Syn. Data Complete...

รายละเอียด แผนที่ ส่งข้อมูล

Menu

Study of Dengue Infection in Children ...

PHICS
Center of Excellence for Biomedical
and Public Health Informatics

DMUData Management Unit

ประวัติการติดต่อโรงพยาบาล
ชื่อ-นามสกุล ด.ญ.อริชชา ศรีกาญจก
: 04-0147

Hospital No.	Illness No.	Fever	Blood drawing date #1	Blood drawing date #2
603886-51	01	0/6	13/07/2008	-

Puncture

Date: 2008-07-16

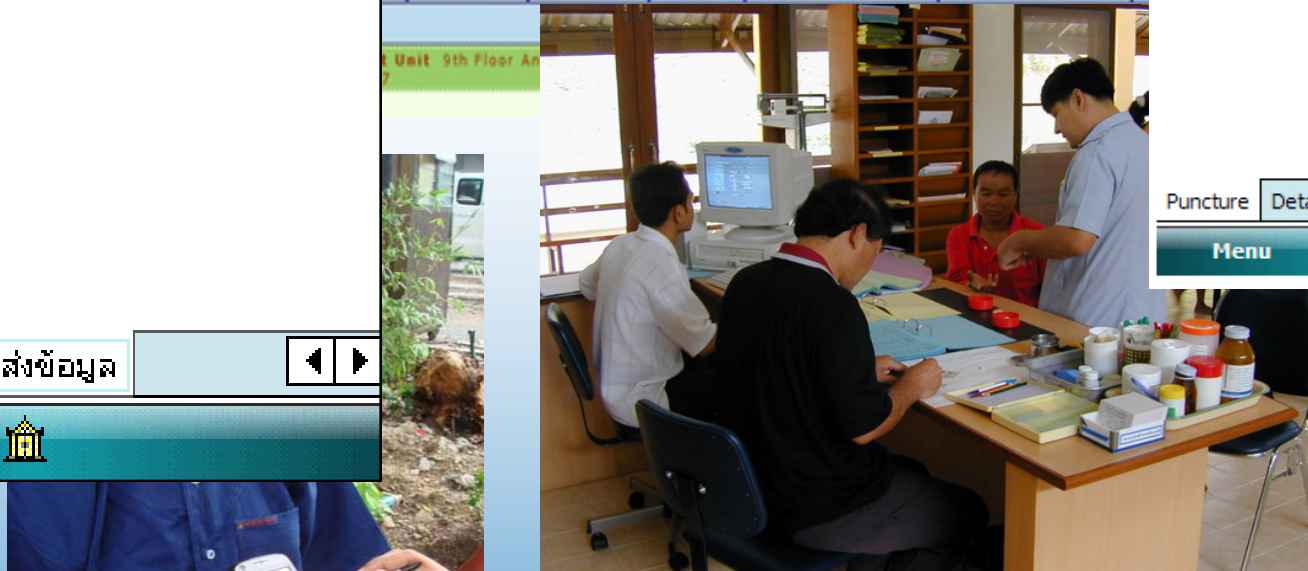
Puncture No: 2008 July

S	M	T	W	T	F	S
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Today: 2008-07-16

Puncture Detail Syn

Menu



**SMS warning for ANC/EPI appointment date
(on patient cell-phone and on health
provider smart phone)**



In Conclusion applying Informatics will

- Reduce Data Processing Time
- Improve Quality Control
- Improve Communication with Data collection sites
- Easy to manage Imaging, Storage , and Retrieval System
- Simple Technology at the data collection sites
- Automated work-flow in moving Forms through all of steps required for data review
- Standardized procedures
- Controlling access to study data
- Increase efficiency and reduce cost



Thank you