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APPENDICES

APPENDIX A: Literature Review and Term Definitions

Information Management: Term Definitions






“The aim of information management is to promote organizational effectiveness by enhancing the capabilities of the organization to cope with the demands of its internal and external environments in dynamic as well as stable conditions. Information management includes organization wide information policy planning, the development and maintenance of integrated systems and services, the optimization of information flows and the harnessing of leading edge technologies to the functional requirements of end-users, whatever their status or role in the parent organization. Information management has two dimensions, the management of the information process and the management of data resources.”

(Rowley, J. E., 1988, p. 360)

List of Abbreviations, Terms, and Annotation:

AE	Accident & Emergency
ALOS	Average Length of Stay
LOS	Length of Stay
CPDB	Central Patients Data Bank
DSP	Decision Support Provision
EHRs	Electronic Healthcare Records
FFS	Fee for Services
FIFO	First In First Out
HIS	Hospital Information Management
OPD	Out-Patient Directory
IPD	In-Patient Directory
THB	Thai Baht Currency

Annotation: From Table 4.3: Front-reception process chart

	: Operation
	: Transportation
	: Inspection
	: Delay
	: Storage

$$\text{Cycle Time} = \frac{\text{Production_time_per_day}}{\text{Required_output_per_day}} \quad (\text{Chase, 1995, p. 407})$$

$$\text{Efficiency} = \frac{\text{Sum_of_task_time}}{(\text{Number_of_workstations}) \times (\text{Cycle_Time})} \quad (\text{Chase, 1995, p. 407})$$

$$\text{Standard Deviation (SD)} = \sqrt{\frac{\sum(x - \bar{x})^2}{n}} ; n = 5 \quad (\text{RCMSE: ASM, 2004})$$

APPENDIX B

Average Waiting-Time Form of Survey:

Source: Navaminthra 2 Hospital (April, 2005); Patient's profile was written in Thai language.
The form shown below was reproduced corresponding to the original form's format.

Navaminthra 2 Hospital		<input type="checkbox"/> New Patient			
Average Waiting Time Form		<input type="checkbox"/> Old			
Patient Name.....		Date.....			
		HN#.....			
Types <input type="checkbox"/> UC <input type="checkbox"/> SSF <input type="checkbox"/> IN <input type="checkbox"/> WCF <input type="checkbox"/> CSMBS					
Start Time.....Am/Pm Finish Time.....Am/Pm. Total Time.....Am/Pm.					
Stations	Start Time	Finish Time	Total Time	Operators	Note
Reception					
Filing					
Gatekeeper Nurses					
Examination					
Drug Dispensing					
Note.....					
.....					
.....					

APPENDIX C

Discharge Summary (IPD): ALOS Form of Survey

Source: Navaminthra 2 Hospital (Jan-March, 2005); Patient's profile was written in Thai language.

โรงพยาบาลวชิร 2 NAVAMINTHRA 2 HOSPITAL		599 ม.4 อ.สุขสำราญ แขวงบางปะกอก เขตราชบุรีระณะ กทม. 10140 โทร. 0-2427-1616 0-2427-3035 แฟกซ์ คือ 1211 สิทธิบัตร ปะริภคณสงคคม		URS	
DISCHARGE SUMMARY (IPD)				6 เม.ย. 2548 03:31	
1. ADMISSION NUMBER 797/48		2. ID NO. เลขประจำตัวประชาชน 3610700068740		3. HOSPITAL NUMBER 48 002310	
4. PATIENT NAME (ชื่อ,สกุล,ตำแหน่งหน้า) นางสาว อิ่มหนา กังวาลย์			5. PATIENT ADDRESS เลขที่ 149 ต.ลานสัก อ. ลานสัก จ. อุทัยธานี		
6. PERSON TO BE NOTIFIED NAME ADDRESS		7. ETHNIC GROUP THAI CHINESE THAI ISLAM THAI CHINESE INDIAN OTHER(SPECIFY)			
8. SEX (รวมเลขที่ตัวเลข) 1 MALE		9. MARITAL STATUS		10. OCCUPATION (อาชีพ)	
11. DATE OF BIRTH 2 มี.ค. 2514		12. AGE AT ADMISSION 34 ปี 1 เดือน 7 วัน		13. GRAVIDITY	
14. PARITY		15. LIVING CHILDREN		16. CONDITION OF CHILD AT BIRTH (CHECK ONE BOX OF EACH COLUMN) O LIVEBORN O CLINICALLY MATURE O STILLBORN O CLINICALLY PREMATURE	
17. BIRTHWEIGHT GRAMS		18. WARD W3		19. DEPARTMENT	
20. DATE OF DAY MONTH YEAR 6 4 48		21. LENGTH OF STAY IN HOSPITAL (DAYS) 4 days			
22. (1) PRINCIPAL DIAGNOSIS		23. OPERATING ROOM PROCEDURES			
22. (2) COMORBIDITY		1. DATE TIME IN TIME OUT			
22. (3) COMPLICATIONS		2.			
22. (4) OTHER DIAGNOSIS		3.			
22. (5) EXTERNAL CAUSE (S) OF INJURY		4.			
24. NON OPERATION ROOM PROCEDURES		25. DISCHARGE STATUS (โปรดวงกลม)		26. DISCHARGE TYPE	
1. () TRACHEOSTOMY		1. COMPLETE RECOVERY		1. WITH APPROVAL	
2. () RESPIRATOR SUPPORT (VENTILATOR SUPPORT)		6. NORMAL CHILD DISCHARGE WITH MOTHER		5. OTHER	
3. () VENESECTION		2. IMPROVED		2. AGAINST ADVICE	
		7. NORMAL CHILD DISCHARGE SEPERATELY		6. DEAD, AUTOPSY	
		3. NOT IMPROVED		3. ESCAPE	
		8. STILLBIRTH		7. DEAD, NO AUTOPSY	
		4. NORMAL DELIVERY		4. BY TRANSFER	
		9. DEAD		ชื่อสถานะของแพทย์ที่ส่งต่อ APPROVED	
		5. UNDELIVER		BY	
ATTENDING PHYSICIAN		SIGNATURE		SIGNATURE	

APPENDIX D

Nursing Admission Assessment (1): Unnecessary Admission Form of Survey
Source: Navaminthra 2 Hospital (Jan-March, 2005); Patient's profile was written in Thai language.

Form containing hospital logo, name (NAVAMINTHRA 2 HOSPITAL), patient details (NAME, AGE, I.D.N., A.N., ROOM, PHYSICIAN), and assessment sections for admission (ประวัติการเจ็บป่วยปัจจุบัน, ประวัติการเจ็บป่วยที่ผ่านมา, ประวัติการเจ็บป่วยครั้งใหม่) and discharge (การรักษานี้ที่ได้รับเมื่อแรกรับ).

การประเมินสภาพ

กรณีประกาศหาย/ ปกติ ความผิดปกติของปาก/ หิน เกล็ดในปาก ไข้ที่ปกคลุม อื่นๆ (ระบุ).....

ภาวะโภชนาการ กลืนลำบาก ผื่นต่อผื่น คัดน้ำ/ ขลิบ ท้องอืด น้ำหนักลด ไข้ที่หายากหายาก
 อื่นๆ (ระบุ).....

กรณีปวดหู/ ตา ปกติ ท้องอืด ท้องผูก กลืนของแข็งไม่ได้ การถ่ายอุจจาระออกทางหน้าท้อง
 อื่นๆ (ระบุ).....

กรณีเจ็บลิ้น/ คอ ปกติ กลืนลำบากไม่ได้ ปัสสาวะมาก ปัสสาวะเป็นเลือด สวมคาตามปัสสาวะ
 อื่นๆ (ระบุ).....

กรณีคลื่นไส้/ ท้องร่วง/ ปกติ ใจจุกอึดอัด ใจจุกอึดอัด ใจจุกอึดอัด ใจจุกอึดอัด
กรณีอาเจียน อัมพาต กระตุก อื่นๆ..... การรับประทานอาหาร ทำได้เอง ทำได้บางส่วน ทำไม่ได้
กรณีท้องอืด/ ท้องผูก ไม่ต้องการ CLUTCHLES WALKER ความสะดวก ทำได้เอง ทำได้บางส่วน ทำไม่ได้
 COMMODE WHEELCHAIR อื่นๆ.....

กรณีง่วงนอน ปกติ นอนไม่หลับ นอนหลับยาก ใช้อานอนหลับช่วย(ระบุชนิด).....
 อื่นๆ (ระบุ).....

กรณีการเคลื่อนไหว ปกติ ปวดกล้ามเนื้อ ปวดคอ ปวดขา ไข้เรื้อรัง อื่นๆ (ระบุ).....
กรณีเดิน ปกติ ไปได้บางส่วน ไปได้ดี อื่นๆ (ระบุ).....
กรณีพูด ปกติ มีปัญหา.....
ความเจ็บปวด (ระบุตำแหน่ง, ลักษณะ).....

ระบบการหายใจ ปกติ หายใจลำบาก หายใจเร็ว หายใจช้า หายใจหอบเร็ว (HYPERVENTILATION) เซนตัสติก (Cough-Spasm)
 ไตมีตะกอน ปลายมือปลายเท้าเขียว ก้างในเลือด (แผลง (CU)).....
 อื่น (ระบุ).....

ระบบประสาท ปกติ อัมพาต ไม่มีสมาธิ เห็นเร็ว เห็นช้า ใจสั่น เจ็บหน้าอก
คลื่น ปกติ วิต อื่นๆ..... บวม ไม่มี มี บริเวณ.....

ระบบประสาท ปกติ ปวดศีรษะ แขนขาอ่อนแรง ชักไม่ชัด ปากเขียว ชัก/ แกร็ง
รูปร่าง ปกติ ผิดปกติข้างขวา : ปฏิเสธ..... ขนาด ข้างซ้าย : ปฏิเสธ..... ขนาด.....
 อื่น (ระบุ).....

ผิวหนัง ปกติ แห้ง เหนียวออก ผื่นแดง ผื่นคัน เจ็บว้ำ เหลือง อื่นๆ (ระบุ).....
บาดแผล (ระบุตำแหน่ง, ลักษณะ).....
แผลกดทับ (ระบุตำแหน่ง, ลักษณะ).....
ระบบอื่น ๆ.....

การประเมินสภาพจิตใจ สังคม และการรับรู้ด้านสุขภาพ

ลักษณะทั่วไป ปกติ เกร็ง อารมณ์เสีย ร้องไห้ แยกตัว อื่นๆ (ระบุ).....

การนอน ร.ท. ทำให้รู้สึก วิตกกังวล กลัว ท้อแท้ สิ้นหวัง อื่นๆ (ระบุ).....


ความรู้ความเข้าใจ/ ความรู้เกี่ยวกับโรค ไม่มี มี (ระบุ).....

กรณีการดูแลตนเอง ไม่เพียงพอ การรู้เกี่ยวกับโรค ได้รับความรู้/ การบอกกล่าว การรู้เรื่อง

การดูแลตนเองเมื่อต้องการมีอุปกรณ์/ การรักษาอื่น ๆ (ระบุ).....

ชื่อ สมชาย อายุ 80 ปี

Admission Form (2): Unnecessary Admission Form of Survey
 Source: Navaminthra 2 Hospital (Jan-March, 2005); Patient's profile was written in Thai language.

 โรงพยาบาลนวมินทร์ 2 NAVAMINTHRA2 HOSPITAL	NAME น.ศ. อ้อม นรชาติ AGE 15 H.N. 47-9090 A.N. 212/09 ROOM 5A9 DATE 10.2.04 TIME X-RAYS NUMBER
	ADMISSION FORM
ประวัติ	
@m p thel - H.E. นม 1x1x1 นิ้ว ป.ป. 11.14.1 * Wt 32.70 * PH 156.00	
ประวัติทางกาย	
BP 99/60 mm.Hg. PR 110 ครั้ง/mm. RR 20 ครั้ง/min. T 39 C Weight Kgs. Height cms.	
General <input type="checkbox"/> Normal Skin <input type="checkbox"/> Normal Head, Face <input type="checkbox"/> Normal Eyes <input type="checkbox"/> Normal ENT <input type="checkbox"/> Normal Neck <input type="checkbox"/> Normal Chura, Breast <input type="checkbox"/> Normal Lungs <input type="checkbox"/> Normal Heart <input type="checkbox"/> Normal Abdomen <input type="checkbox"/> Normal Genitalia, Rectal <input type="checkbox"/> Normal Extremities <input type="checkbox"/> Normal Neurological <input type="checkbox"/> Normal Other <input type="checkbox"/>	Abnormal
การวินิจฉัยเบื้องต้น แพทย์รักษา	Thaisamma E. Sorn Anom 5. Trampa
	แพทย์ Admit MED - 001

APPENDIX E**Medical care Diagnosis-Related Groups (DRGs)**

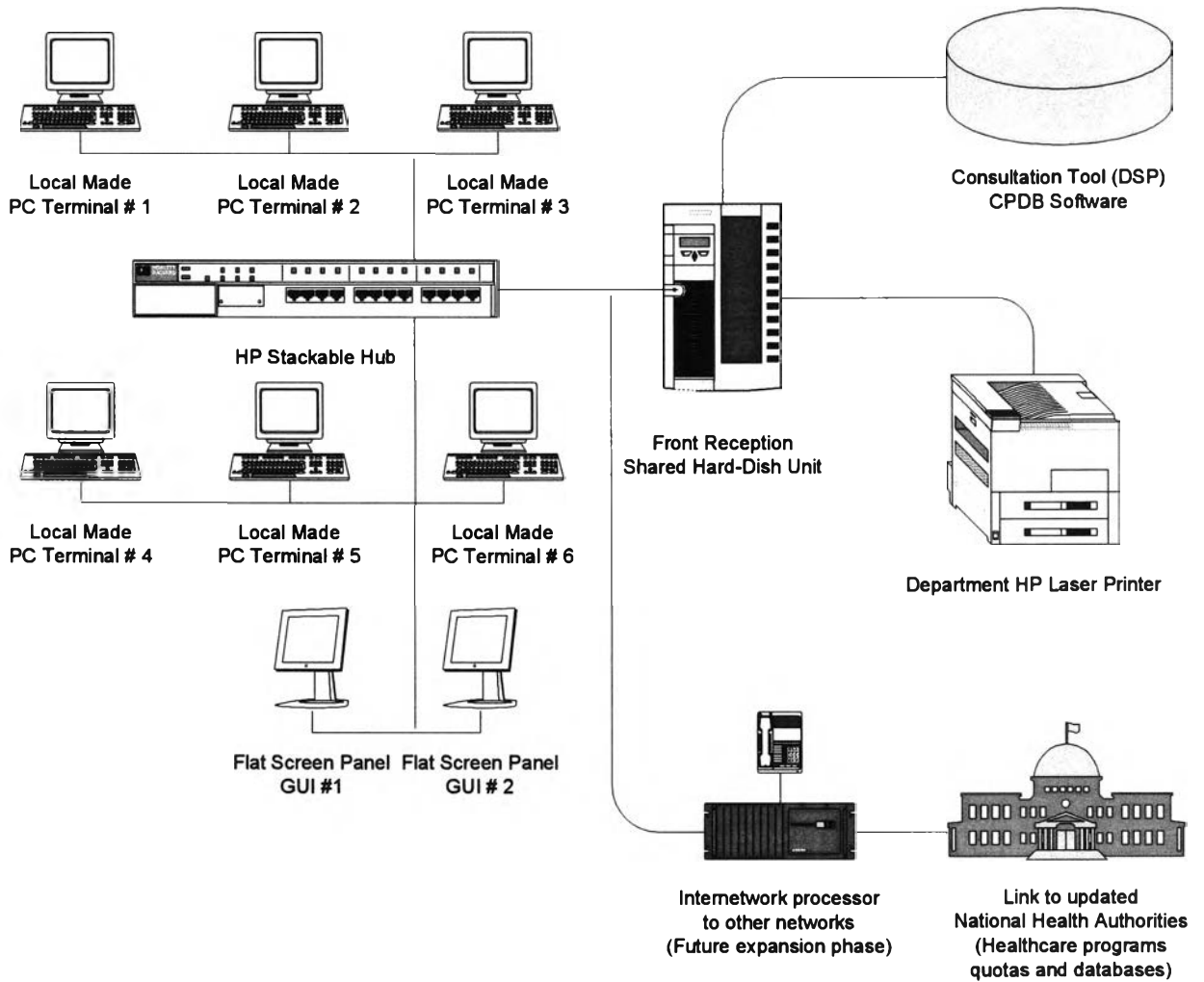
Diseases lists for SSF program only: Listed by MoPH

Source: NHSO (2004) Universal Health Coverage Handbook: Evidence Based Policy.

NHSO Printed (Thai Version), Bangkok, pp. 88-92.

1. <i>Diabetis Mellitus.</i>
2. <i>Hypertention.</i>
3. <i>Chronic Hepatitis, Liver Cirrhosis</i>
4. <i>Chronic Heart Failure</i>
5. <i>Cerebrovascular Accident*</i>
6. <i>Malignancy</i>
7. <i>Acquired Immune Deficiency Syndrome</i>
8. <i>Emphysema</i>
9. <i>Chronic Renal Failure</i>
10. <i>Parkinson</i>
11. <i>Myasthenia Gravis</i>
12. <i>Diabetis Insipidus</i>
13. <i>Multiple Sclerosis</i>
14. <i>Dyslipidemia</i>
15. <i>Rheumatoid</i>
16. <i>Glaucoma</i>
17. <i>Nephrotic Syndrome</i>
18. <i>Systemic Lupus Erythematosus</i>
19. <i>Aplastic Anemia</i>
20. <i>Thallasemia</i>
21. <i>Hemophelia</i>
22. <i>Psoriasis</i>
23. <i>Chronic Vesiculobulous lesion</i>
24. <i>Idiopathic Thrombocytopenic Purpura</i>
25. <i>Thyrotoxicosis</i>

APPENDIX F:
Resource Planning: Hardware Preparation
 Estimated database platform, IT infrastructure, and LAN structure
 Use for the front-reception area only



APPENDIX G: Lead Time Table: Average time in each workstation of the front reception area; only focus on first three workstations

Trial	H.N.	Start Time	Finish Time	Total Time (Min)	Average Time in Each Workstation of the Front Reception Area															Note
					Reception			Filing	Gatekeeper Nurses			Gate-Exam	Examining Rooms			Exam-OPD/IPD	Drug Dispensing			
					In	Out	(Min)	(Min)	In	Out	(Min)	(Min)	In	Out	(Min)	(Min)	Out	(Min)	(Min)	
1	44-13956	10:20	11:19	59	10:20	10:40	20	0	10:40	-	-	8	10:48	10:53	5	13	11:06	11:19	13	-
2	46-21882	10:43	11:28	45	10:43	10:54	11	0	10:54	-	-	6	11:00	11:03	3	7	11:10	11:28	18	-
3	42-20346	13:12	14:05	53	13:12	13:20	8	0	13:20	-	-	2	13:22	13:58	36	3	14:01	14:05	4	EXR
4	46-35217	13:37	14:27	50	13:37	13:48	11	0	13:48	-	-	12	14:00	14:02	2	14	14:16	14:27	11	-
5	44-2210	13:40	14:17	37	13:40	13:41	1	9	13:50	-	-	1	13:51	13:53	2	18	14:11	14:17	6	-
6	42-41391	13:03	13:50	52	13:03	13:12	9	8	13:20	-	-	6	13:26	13:28	2	16	13:44	13:55	11	-
7	46-11557	12:32	13:07	35	12:32	12:47	15	2	12:49	-	-	3	12:52	12:54	2	8	13:02	13:07	5	-
8	47-22111	12:40	12:56	47	12:40	12:56	16	2	12:58	-	-	0	12:58	13:00	2	10	13:10	13:27	17	-
9	47-13952	12:52	13:30	38	12:52	13:09	17	1	13:10	-	-	3	13:13	13:16	3	9	13:25	13:30	5	-
10	43-7091	13:48	14:35	47	13:48	13:54	6	1	13:55	-	-	11	14:06	14:08	2	17	14:25	14:35	10	-
11	46-4480	14:14	14:51	37	14:14	14:24	10	1	14:25	-	-	3	14:28	14:30	2	6	14:36	14:51	15	-
12	42-20056	10:12	10:54	42	10:12	10:24	9	3	10:24	-	-	11	13:35	10:38	3	7	10:45	10:54	9	-
13	47-18419	9:32	10:48	76	9:32	10:00	23	5	10:00	-	-	15	10:15	10:17	2	13	10:30	10:48	18	-
14	46-27662	9:40	10:50	70	9:40	10:06	24	2	10:06	-	-	13	10:19	10:21	2	17	10:38	10:50	12	-
15	47-9471	9:13	9:57	44	9:13	9:24	8	3	9:24	-	-	19	9:40	9:43	3	5	9:48	9:57	9	-
16	44-5919	8:32	9:19	47	8:32	8:48	17	1	8:48	-	-	6	8:54	8:58	4	9	9:07	9:19	12	-
17	47-11597	11:46	12:22	36	11:46	11:59	13	0	11:59	-	-	9	12:08	12:10	2	7	12:17	12:22	5	-
18	46-18698	9:43	10:30	47	9:43	10:05	21	1	10:05	-	-	12	10:17	10:21	4	3	10:24	10:30	6	-

19	43- 20971	9:51	10:50	59	9:51	10:12	19	2	10:12	-	-	9	10:21	10:26	5	4	10:30	10:50	20	-
20	44- 36879	9:02	9:51	49	9:02	9:23	17	4	9:23	-	-	7	9:30	9:33	3	7	9:40	9:51	11	-
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23	47- 4543	15:00	15:38	38	15:00	15:14	13	10	15:14	-	-	13	14:27	15:30	3	5	15:35	15:38	3	-
24	48- 5219	15:02	15:40	38	15:02	15:15	13	0	15:15	-	-	4	15:19	15:22	3	9	15:31	15:40	9	-
25	47- 28013	14:30	15:12	42	14:30	14:42	12	0	14:42	-	-	15	14:57	15:00	3	9	15:09	15:12	3	-
26	45- 26556	14:15	15:15	60	14:15	14:26	9	2	14:26	-	-	29	14:55	14:57	2	7	15:04	15:15	11	-
27	43- 29561	17:02	17:36	34	17:02	17:17	15	0	17:17	-	-	1	17:18	17:20	2	7	17:27	17:36	9	-
28	43- 17541	16:38	17:27	49	16:38	17:09	31	0	17:09	-	-	8	17:12	17:19	2	3	17:22	17:27	5	-
29	42- 33660	15:01	15:40	39	15:01	15:16	15	0	15:16	-	-	0	15:16	15:19	3	12	15:31	15:40	9	-
30	45- 467	8:45	10:15	90	8:45	9:13	28	1	9:14	-	-	18	9:32	9:36	4	9	9:45	10:15	30	-
31	47- 22981	18:39	19:31	52	18:39	18:56	17	1	18:57	-	-	12	19:09	19:12	3	2	19:14	19:31	17	CD
32	44- 2200	18:30	19:53	83	18:30	18:41	11	2	18:43	-	-	33	19:16	19:21	5	7	19:28	19:53	25	-
33	46- 25420	18:45	19:55	70	18:45	19:04	19	0	19:04	-	-	10	19:14	19:38	24	0	19:38	19:55	17	-
34	45- 832	17:57	18:36	39	17:57	18:20	23	1	18:21	-	-	2	18:23	18:25	2	4	18:29	18:36	7	CD
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40	47- 47-	12:59	13:45	46	12:59	13:10	11	0	13:10	-	-	12	13:22	16:25	3	8	13:33	13:45	12	-

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76	42- 13011	10:08	11:05	17	10:08	10:13	5	7	10:20	-	-	0	10:20	10:51	31	7	10:58	11:05	7	U/A
77	44- 38218	10:00	10:53	53	10:00	10:05	8	12	10:20	-	-	3	10:23	10:30	7	12	10:42	10:53	11	-
78	47- 27583	10:35	11:16	41	10:35	10:43	8	12	10:55	-	-	0	10:55	10:58	3	7	11:05	11:16	11	-
79	48- 3521	10:36	11:26	50	10:36	10:52	16	8	11:00	-	-	5	11:05	11:08	3	11	11:19	11:26	7	-
80	46- 6519	10:27	11:20	53	10:27	10:56	29	0	10:56	-	-	1	10:57	11:00	3	12	11:12	11:20	8	-
81	43- 16772	10:30	11:30	60	10:30	10:50	20	3	10:53	-	-	25	11:18	11:20	2	6	11:26	11:30	4	-
82	46- 5447	10:50	11:31	41	10:50	10:57	7	8	11:05	-	-	15	11:20	11:22	2	4	11:26	11:31	5	-
83	48- 6305	10:54	11:35	39	10:54	10:57	3	10	11:07	-	-	16	11:23	11:25	2	5	11:30	11:33	3	-

84	47- 23478	11:19	12:07	48	11:19	11:34	15	11	11:45	-	-	1	11:46	11:49	3	13	12:02	12:07	5	-
85	46- 4144	11:10	12:08	58	11:10	11:29	19	1	11:30	-	-	10	11:40	11:43	3	19	12:07	12:08	6	-
86	42- 34424	11:17	12:10	53	11:17	11:34	17	11	11:45	-	-	4	11:49	11:52	3	12	12:04	12:10	6	-
87	42- 40982	8:08	8:50	42	8:08	8:23	15	7	8:30	-	-	2	8:32	8:44	12	0	8:44	8:50	6	-
88	45- 15480	9:27	10:00	33	9:27	9:33	6	0	9:33	-	-	13	9:46	9:49	3	7	9:56	10:00	4	-
89	42- 17184	9:30	10:15	45	9:30	9:39	9	11	9:50	-	-	9	9:59	10:09	10	0	10:09	10:15	6	-
90	41- 8180	8:19	9:12	53	8:19	8:39	20	8	8:47	-	-	6	8:53	9:07	14	0	9:07	9:12	5	-
91	47- 28574	9:11	9:50	39	9:11	9:21	10	11	9:32	-	-	5	9:37	9:38	1	10	9:48	9:50	2	-
92	42- 202	8:52	9:31	39	8:52	9:15	23	0	9:15	-	-	1	9:16	9:19	3	3	9:22	9:31	9	-
93	47- 2202	8:47	9:35	48	8:47	8:59	12	1	9:00	-	-	3	9:03	9:07	4	19	9:26	9:35	9	-
94	44- 11574	9:07	9:36	29	9:07	9:20	13	0	9:20	-	-	1	9:21	9:24	3	5	9:29	9:36	7	-
95	47- 11788	9:01	9:52	51	9:01	9:26	25	0	9:26	-	-	1	9:27	9:29	2	10	9:39	9:52	13	-
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98	45- 12258	13:58	14:37	39	13:58	14:20	22	0	14:20	-	-	2	14:22	14:26	4	6	14:32	14:37	5	S
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103	46- 14510	15:23	15:46	23	15:23	15:27	4	8	15:35	-	-	0	15:35	15:36	1	6	15:42	15:46	4	-
104	45- 27518	16:09	16:45	36	16:09	16:15	6	10	16:25	-	-	8	16:33	16:35	2	7	16:42	16:45	3	-
105	42- 1520	15:20	15:48	28	15:20	15:32	12	0	15:32	-	-	1	15:33	15:44	11	0	15:44	15:48	4	-

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110	45- 19445	16:45	16:55	10	16:45	16:46	1	1	16:47	-	-	5	16:52	16:54	2	0	16:54	16:55	1	-
111	46- 36182	16:30	17:01	31	16:30	16:36	6	4	16:40	-	-	5	16:45	16:47	2	7	16:54	17:01	7	-
112	46- 3656	16:17	16:53	36	16:17	16:31	14	0	16:31	-	-	8	16:39	16:41	2	8	16:49	16:53	4	-
113	48- 7051	16:10	16:44	34	16:10	16:14	4	6	16:20	-	-	14	16:34	16:37	3	7	16:44	16:50	6	-
114	47- 9422	15:30	16:19	45	15:34	15:47	13	6	15:53	-	-	7	16:00	16:04	4	2	16:06	16:14	13	-
115	46- 33307	11:35	12:40	65	11:35	11:54	19	0	11:54	-	-	31	12:25	12:27	2	9	12:36	12:40	4	-
116	46- 32508	17:30	18:08	38	17:30	17:37	7	3	17:40	-	-	18	17:58	18:03	5	3	18:06	18:08	2	-
117	46- 30774	9:00	9:56	56	9:00	9:10	10	21	9:31	-	-	3	9:34	9:36	2	6	9:42	9:56	14	-
118	45- 32481	9:01	9:50	49	9:01	9:18	17	13	9:31	-	-	0	9:31	9:33	2	6	9:39	9:50	11	-
119	47- 6466	9:05	9:40	35	9:05	9:10	5	17	9:27	-	-	0	9:27	9:29	2	6	9:35	9:40	5	-
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				9533			2669	779				1987			1239	1392			1638	
				<u>47.67</u>			<u>13.35</u>	<u>3.90</u>				<u>9.94</u>	<u>27.18</u>		<u>6.20</u>	<u>6.96</u>			<u>8.19</u>	

Biography

Ponnon Kaewtip was born on July 12th, 1976 in Bangkok, Thailand. He had earned his B.S. in Mechanical Engineering from California State University Sacramento, California, Sacramento, U.S.A. Afterward, he came back to Thailand and has worked for the Navaminthra 2 Hospital as assistant manager, while joining The Regional Centre for Manufacturing Systems Engineering, Faculty of Engineering, Chulalongkorn University in dual-programs degree of M.Eng. in Engineering Management and M.Sc. in Engineering Business Management from Warwick Manufacturing Group, University of Warwick, Coventry, UK.

