

# Intelligent Healthcare Solutions

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TAIWAN



# CURRENT MEDICAL ENVIRONMENT



# Laborious Task of Bedside Clinical Transcription By Staffs



Numerous Clinical Recordings



- Vital Signs
- Nursing Assessment
- Dialysis Record
- Respiratory Care Record
- Anesthetic Record

transcription、  
login

.....

With the rapid advancement of medical technology...



1. Medical Staffs “interact”  
more with the machines  
than with the patients!!!

2. New developments in  
Bluetooth Technology for medical  
Equipment

3. Different medical equipment  
cannot be connected

4. What about our older  
equipment???



# **Intelligent Solution For Clinical Healthcare**



# Intelligent Solution- WiDAS

## 無線傳輸生理量測(WiDAS)

可與現階段大部分醫療儀器連接，大幅縮短護理師龐大數據抄寫的時間，正確且簡易的完成護理工作。



Complicated data  
can now be easily  
and accurately  
transmitted  
online



# Intelligent Healthcare—bringing all the clinical equipment together



# Simple Control Method

## Scan ID

可讀一維條碼、二維條碼、RFID

讀取病患



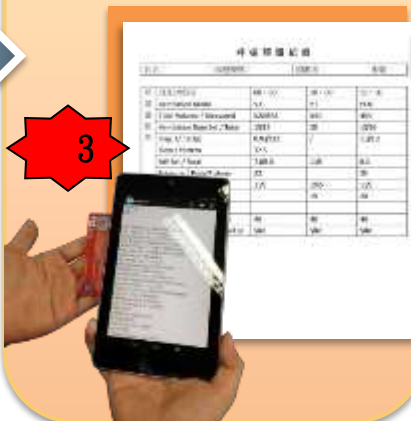
呼吸治療師

卡識別



## Scan Equipment

BT, BP, HR, Sugar



## Transfer to HIS



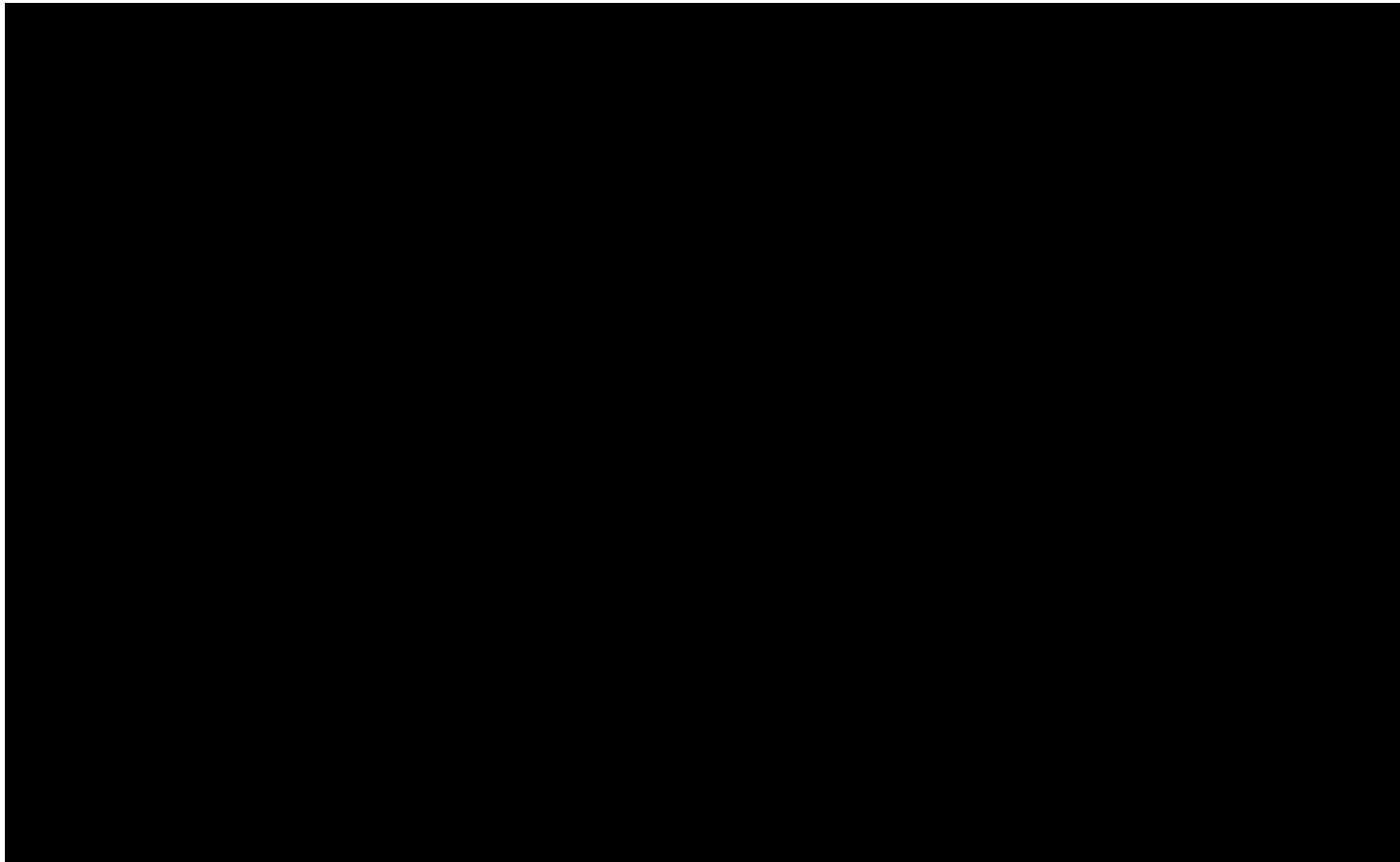
Easily read and transfer data

- **Verifies patient ID**
- **Mobile devices**  
(Cellphones, tablets, etc)  
Easily capture signal of medical equipment
- **HIS data formatted and organized**





# Intelligent Solution for Clinical Care



# Clinical Usage: Example 1

Hospital Ward- Blood pressure, pulse rate, respiratory rate, SpO<sub>2</sub>, height/weight, IV pumps, I/O...and other records



# TPR Intelligent Data Transfer— Increasing Efficacy & Reducing Errors Made



Body Temp.	Resp rate	Blood Pressure
Blood Sugar	Oxygen	I/O
BMI	Excretion	MC
Sleep cycle	Eating	Swallowing

Able to integrate all the data from varying machines

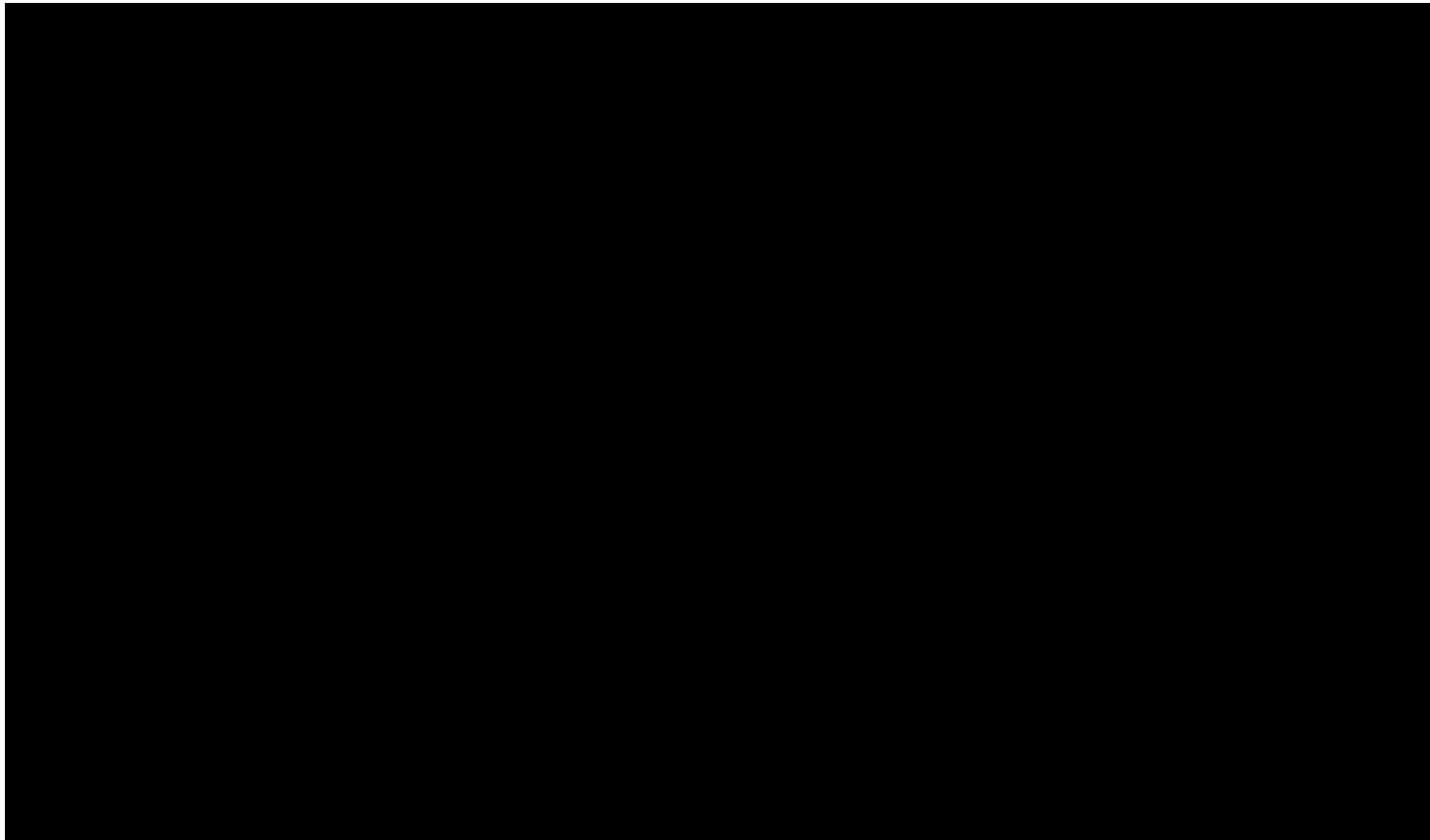


# Clinical Usage:

## Example 2- Ventilators



# Intelligent Solution for Clinical Care Needs- Ventilators



# Newly Added Respiratory Data Record



呼吸照護紀錄

呼吸器使用狀況

日期: 2016-02-05 時間: 23:46

Ventilator type	Ventilator Id	Mode
rt	123	rt

Tidal Volume set	Tidal Volume monitor
120	25

Ventilation Rate set	Ventilation Rate monitor
120	25

InspT	I:E	Flow	MV set	MV total
1	2	3	4	5

Peak	Plateau	Mean	PEEP	PS	PC
6	7	8	9	10	11

E sense	rise time	Temperature
12	13	14

Screenshot of the data collected through the Bluetooth dongle



# Medical Chart Printout (Integrated)

雲基呼吸1號

← 雲基呼吸1號  ↻

記錄單 呼吸照護紀錄 評估表(日) 評估表(月)

回呼吸器脫離評估記錄單(月評)列表  
 呼叫器脫離評估記錄單(月評)

姓名

雲基呼吸1號

病歷號

500609

病床號

1234

性別

男

年齡

8

開始使用呼吸器時間

2016/02/12

氣道介面

← 呼吸照護\_雲基 ↻

雲林基督教醫院  
 RWC 呼吸器脫離流程執行  
 評估  
 Weaning Protocol Check List

病歷號: A20160217  
 科別: 呼吸  
 床號: 111122  
 醫師: 王

執行日期: 2016/02/26

無或請填寫執行日期(日期)

Grade I criteria  
 1. F<sub>IO2</sub> < 60 or SpO<sub>2</sub> > 90% on FIO<sub>2</sub> of ≤ 40%  
 2. An increase in PaCO<sub>2</sub> of > 10 mmHg decrease in p(H+) > 0.10  
 3. P<sub>ao</sub> > 45 mmHg > 10 mmHg  
 4. Decrease in the ΔBP > 20% or > 50 mmHg

Grade II criteria  
 1. FE = 140 or 50 for 5 min  
 2. A sustained increase of ΔBP > 20%  
 3. 50% or increase of work of breathing > 15 mmHg  
 4. RR > 33 for > 10 min

Grade III criteria  
 1. Dysphagia  
 2. Agitation

Fulled SBT  
 Grade I - any one  
 Grade II - any two  
 Grade III - both grade I & II

評估日期	02-25	02-26	02-27	02-28	02-29	03-01	03-02
每日脫離呼吸器 之數	Grade I	Grade I	Grade I	Grade I	Grade I	Grade I	Grade I
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45
每日脫離呼吸器 之數	1-45	1-45	1-45	1-45	1-45	1-45	1-45



- Various medical charts (daily evaluation, monthly assessment, etc.) automatically integrates and can be printed with ease



# Clinical Usage:

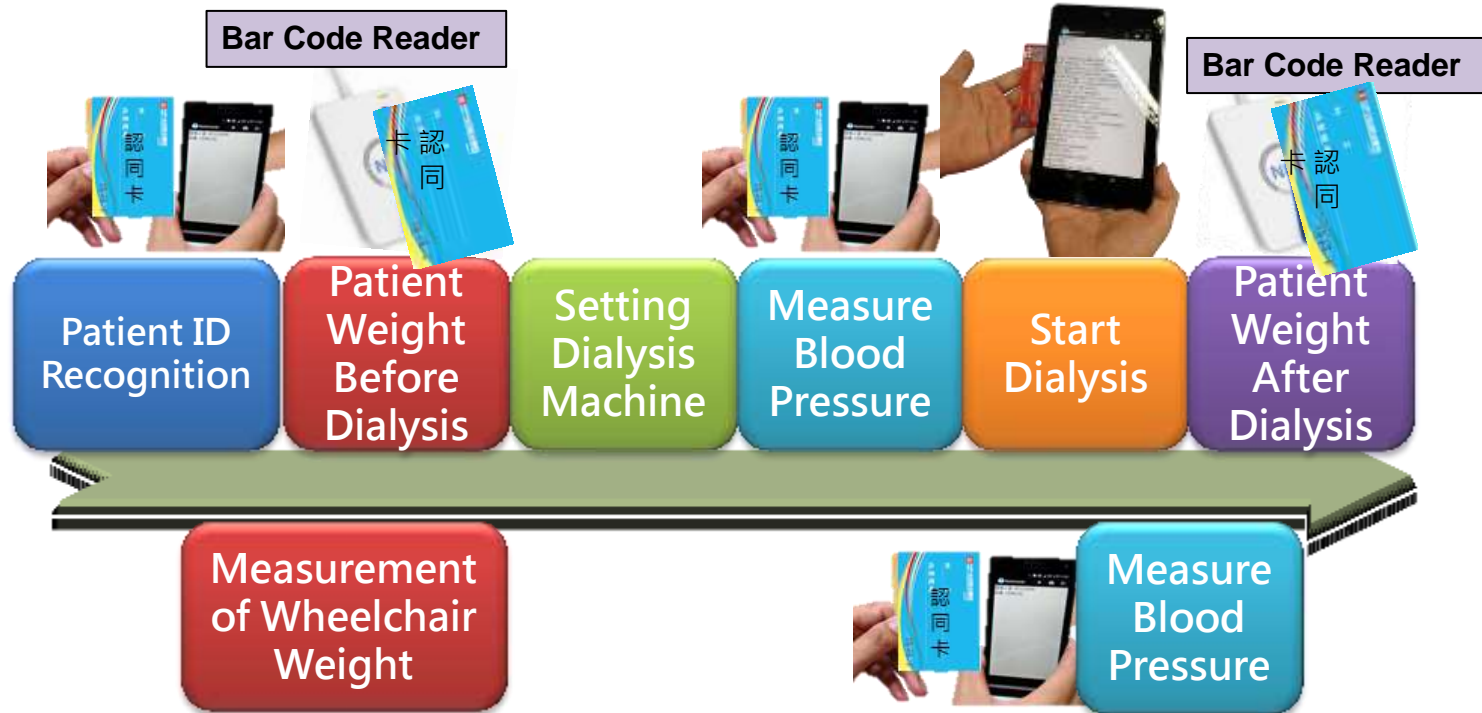
## Example 3- Dialysis Machine





# Mobile Intelligence- Dialysis Treatment Flow Chart

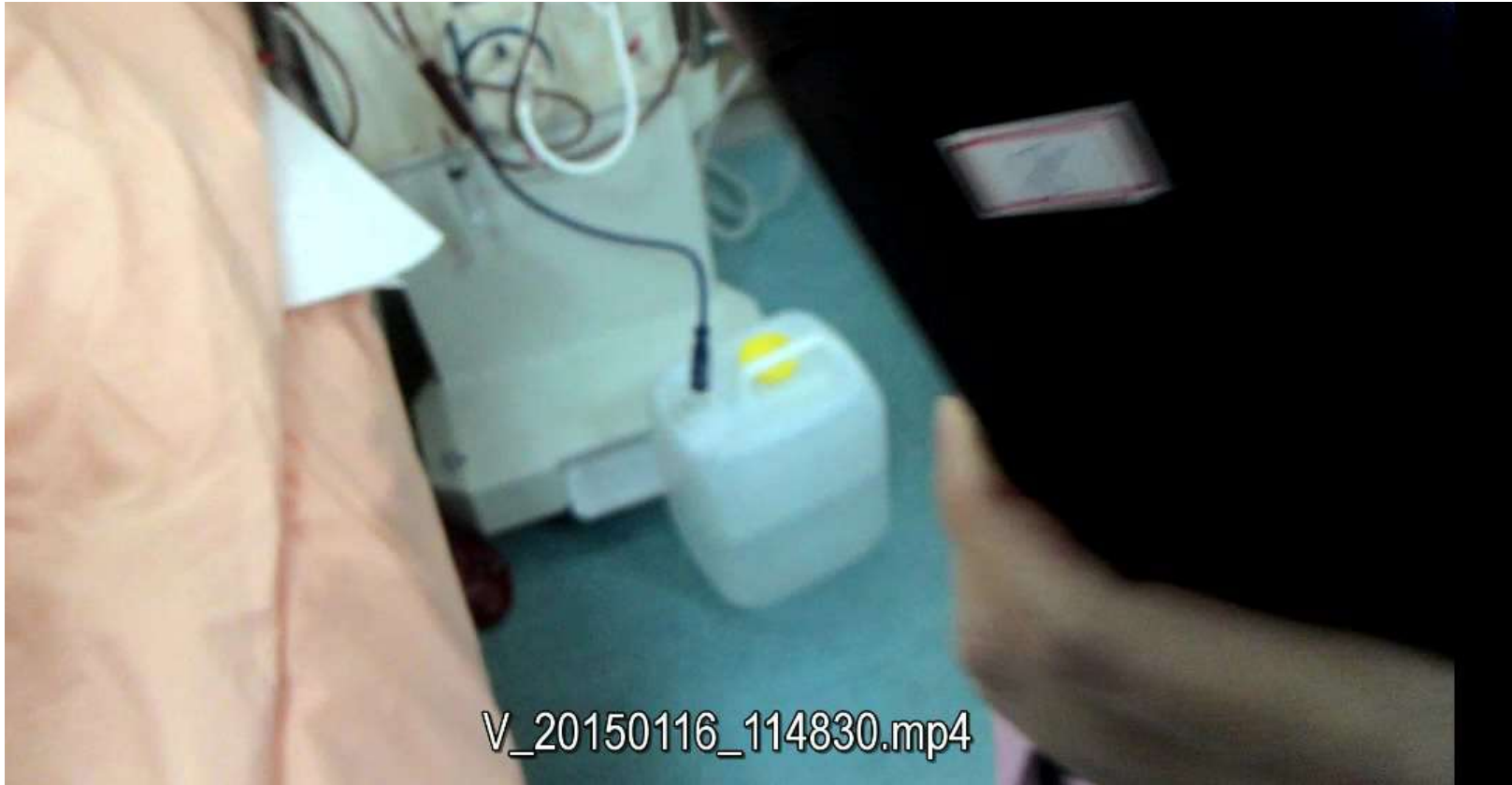
With just a RFID card...



# Weight Data Uploads to HIS



# Reads the Data From The Dialysis Machine



V\_20150116\_114830.mp4



# NIS & Notes



# Patient Records

Patient List Shows  
Health Records



The screenshot shows a mobile application interface with a patient list. The header includes a search bar and a '搜尋' (Search) button. The list contains the following entries:

ID	Name	Gender	Age	Health Record
80 092	林祥	男	87	紅肝 16:31
22 104	林丹	女	74	跌 15:43
50 382	林珠	女	73	量完洗後體重
71 306	林發	男	49	量完洗後體重
70 582	林英	女	64	綠肝
20 351	林興	男	78	量完洗後體重

Patient Data Shown  
During Treatment



The screenshot shows a mobile application interface displaying patient data during treatment. The header includes the patient's name, gender, age, and weight. The main content area shows the following information:

透析紀錄 35/35

廖鳳 女 78歲 70 62

2016-03-02 第 35 次

上機 07:54 下機:

上次交班事項:  
2/29析後體重54.7公斤, 請醫師調體重。

下次交班事項:

上次透析情況主訴:

透析處方:  
狀態:長期, 臥床:否, D.W:54.9,  
Frequency: Tiw, 透析液: 3.0/2.0, HCO3 /  
NA: 34 / 140, DT: 36.5, 透析液流速: 500,  
Needle: A端: 17 / V端: 17, Mode: HD-,  
Heparin: 500u / 250u, BF: 250, Duration:  
3 小時 15 分, 人工腎臟: PS18

- Basic health data of the patients are shown
- Acts as a constant reminder for the medical staffs during treatment



# Patient Weight Records & Estimated Water Quantity Removed/Shed

透析表

范 景(女)-57歲 90 31

總覽 透析機 執行紀錄 護理紀錄 開單

基本 透析處方 血管/造管通路 輸血 體重 評估

### 體重與預估脫水量

前次透析體重: **42.1**

透析前總重(公斤): 56.5

輪椅重量(公斤): 12.1

衣物重量(公斤): 0

食物重量(公斤): 0

輸注量(公斤): 0



透析表

范 景(女)-57歲 90 31

總覽 透析機 執行紀錄 護理紀錄 開單

基本 透析處方 血管/造管通路 輸血 體重 評估

透析前體重(公斤): 44.4

理想體重(公斤): 42

目標脫水量(公斤): 2.4

設定脫水量(公斤): 2.4

結束總重(公斤): 54.4

結束體重(公斤): 42.3

實際脫水量(公斤): 2.1

體重異常





# AV shunt Assessment Record

財團法人彰化基督教醫院雲林分院  
血液透析病人血管通路記錄單

病歷號碼:  院口:   
姓名: \_\_\_\_\_ 年齡: \_\_\_\_\_

種類	建立日期	地位	停止日期	停止原因
臂動脈	1. 年 月 日	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <input type="checkbox"/> I <input type="checkbox"/> J <input type="checkbox"/> K <input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> O <input type="checkbox"/> P <input type="checkbox"/> Q <input type="checkbox"/> R <input type="checkbox"/> S <input type="checkbox"/> T <input type="checkbox"/> U <input type="checkbox"/> V <input type="checkbox"/> W <input type="checkbox"/> X <input type="checkbox"/> Y <input type="checkbox"/> Z		
股動脈	2. 年 月 日	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <input type="checkbox"/> I <input type="checkbox"/> J <input type="checkbox"/> K <input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> O <input type="checkbox"/> P <input type="checkbox"/> Q <input type="checkbox"/> R <input type="checkbox"/> S <input type="checkbox"/> T <input type="checkbox"/> U <input type="checkbox"/> V <input type="checkbox"/> W <input type="checkbox"/> X <input type="checkbox"/> Y <input type="checkbox"/> Z		
內瘻	3. 年 月 日	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <input type="checkbox"/> I <input type="checkbox"/> J <input type="checkbox"/> K <input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> O <input type="checkbox"/> P <input type="checkbox"/> Q <input type="checkbox"/> R <input type="checkbox"/> S <input type="checkbox"/> T <input type="checkbox"/> U <input type="checkbox"/> V <input type="checkbox"/> W <input type="checkbox"/> X <input type="checkbox"/> Y <input type="checkbox"/> Z		
動脈	4. 年 月 日	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <input type="checkbox"/> I <input type="checkbox"/> J <input type="checkbox"/> K <input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> O <input type="checkbox"/> P <input type="checkbox"/> Q <input type="checkbox"/> R <input type="checkbox"/> S <input type="checkbox"/> T <input type="checkbox"/> U <input type="checkbox"/> V <input type="checkbox"/> W <input type="checkbox"/> X <input type="checkbox"/> Y <input type="checkbox"/> Z		
靜脈	5. 年 月 日	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <input type="checkbox"/> I <input type="checkbox"/> J <input type="checkbox"/> K <input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> O <input type="checkbox"/> P <input type="checkbox"/> Q <input type="checkbox"/> R <input type="checkbox"/> S <input type="checkbox"/> T <input type="checkbox"/> U <input type="checkbox"/> V <input type="checkbox"/> W <input type="checkbox"/> X <input type="checkbox"/> Y <input type="checkbox"/> Z		

林姓患者第一次手術時間: \_\_\_\_\_ 林姓患者第二次手術時間: \_\_\_\_\_ 林姓患者第三次手術時間: \_\_\_\_\_

異常或更改記錄:

年一月一日	醫師	治療	處理結果	記錄者



歷次血液通路評估紀錄

范 景(女)-57歲 90 31

血管部位\*

右內頸靜脈

右鎖骨下靜脈

**右上臂**

右前臂

右肘靜脈

右大腿

右小腿

左內頸靜脈

左鎖骨下靜脈

左上臂

左前臂

左肘靜脈

左大腿

左小腿

血管醫院\*



**Before Digitization:** simply writing the blood circulatory conditions is complex and not environmentally friendly due to paper amount required

**After Digitization:** interface shows physical diagram including noted location of problematic areas; simple, easily understood and paperless required



# NIS & Notes

The image displays three screenshots of a mobile application interface for dialysis management, showing patient information, dialysis records, and nursing notes.

**Screenshot 1 (Left):** Patient list for 'cch測試病患1(男)-29歲' (ID: 12345678). The interface includes tabs for '透析機', '執行紀錄', '護理紀錄', and '開藥紀錄'. A '片語主目錄' (Phrase Index) is visible, listing categories: 1. 透析前 (Dialysis Before), 2. 透析中 (Dialysis During), 3. 透析後 (Dialysis After), and 醫師片語 (Physician Phrases).

**Screenshot 2 (Middle):** Patient record for '林 [redacted] 男-49歲' (ID: 70 82). It shows a list of dialysis sessions with dates and times, including descriptions of the procedure and patient status.

**Screenshot 3 (Right):** Detailed dialysis record for '林 [redacted] 男 49歲' (ID: 70 82). It includes a nursing note (護理紀錄) describing the dialysis process, patient weight (87.9 kg), and vital signs. The note mentions: '06:39 - 今天 06 時 39 分, 測量體重: 87.9 kg.', '07:33 - 上次透析後返家無不適, 無發燒, 無出血情形。今病人GCS: E4M6V5, 現開始接受血液透析, 預定hemodialysis(H/D)3小時30分, 脫水: 3.1公斤, 予透析中密切觀察生命徵象。', and '09:12 - 透析中平順無任何不適, 依標準透析程序執行安全透析, 並密切觀察血壓變化, 調整脫水量及有無不適症, 例如: 低血壓, 抽筋, 嘔吐, 胸悶, 予每30分至1小時監測生命徵象。' The record is signed by '魏 淇'.

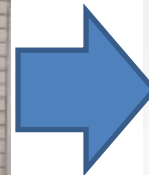
Nurses NIS and Notes





# EPO Records

A large, dense grid of handwritten medical records, likely a patient's EPO (Erythropoietin) usage log. The grid contains numerous columns and rows of text, with some entries highlighted in pink. A white vertical bar is present on the left side of the grid.



A screenshot of a mobile application titled "歷次用藥紀錄" (History of Medication Records). The patient's name is "廖 鳳(女)-78歲" (Liao Feng, Female, 78 years old) and the ID numbers are "70 62". The application displays a summary of EPO usage for the year 2016.

2016 年度 EPO 特殊藥物統計紀錄單		
月份	NESP/mcg	M
1月	20	
2月	40	
3月		
4月		
5月		
6月		
7月		
8月		
9月		



# Blood Transfusion Verification

## Patient Verification

Using the RFID Reader within the PDA, we can verify the patient ID card (RFID card)

## Duo Verification

Using the RFID Reader within the PDA, we can take 2 medical staffs ID card (RFID卡) and verify it at the same time

## Blood Bag Verification

Using the Bar code Reader within the PDA, we can scan the bar codes of the blood bags for verifications

Verifying



Verified:  
Mistake



Verified: Correct





# Pharmaceutical Record



透析表

cch測試病患1(男)-29歲 12345678

透析機 執行紀錄 護理紀錄 開藥紀錄

2016-02

02/19 1天  
針劑 - Vita-C  
IV, ST, 一次1 amp, 共 1 amp

02/18 1天  
針劑 - Nesp  
IV, ST, 一次1 syri, 共 1 syri

02/18 1天  
針劑 - Vita-C  
IV, ST, 一次1 amp, 共 1 amp

02/18 1天

+



歷次用藥紀錄

cch測試病患1(男)-29歲 12345678

2016/02/19 (五)

14:11 Vita-C 1

2016/02/18 (四)

Nesp 1  
Vita-C 1  
chlorpheniramine 1

2016/02/16 (二)

10:58 stin  
不執行原因: 222

10:41 Vita-C 1

2015/11/10 (二)



# Dialysis Record Chart- Print Function

Before

Print Button



Digitize

Print

After

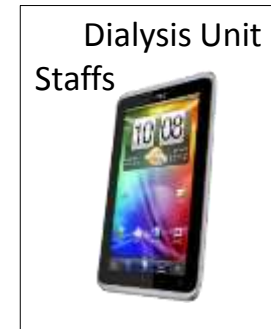
The dialysis records are all saved on the HIS, Simply press print on your mobile device and you can printout your records.



# Quantity Spent & Inventory Management



Bluetooth



WiFi



HIS · NIS...Integration

Benefit:

1. Billing of the cost of treatment
2. Inventory level

30/49



# Doctors' Round



# Doctor's Round

Rounds



Prescription Slip



Dialysis Plan-  
Abnormality Observed



- During their rounds, by using their tablets, the doctors could check the dialysis record, nurse records, and examination results of the patients to determine their prescription/treatment plan
- Integrates with the hospital HIS; full medical history of patient can be viewed
- 7 inch tablet is just the right size and fits the doctor's pocket perfectly





# System Integration

## Examination Results Inquiry



日期	姓名	性别	年龄	科室	检查项目	检查结果	备注
10/01/22	张三	男	45	内科	血常规	WBC: 12.5	感染
10/01/22	李四	女	35	外科	心电图	窦性心律	正常
10/01/22	王五	男	60	内科	血糖	180 mg/dL	糖尿病

## Nursing Records



## Medical Imaging Inquiry

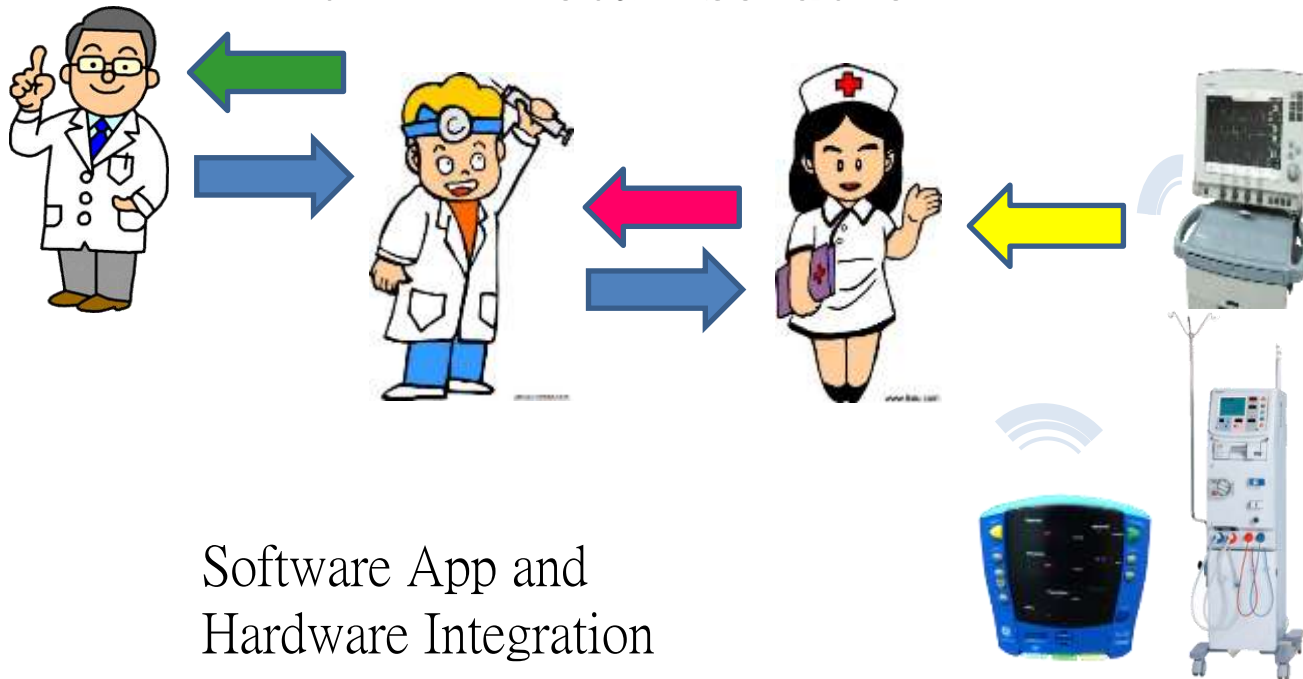


## Can Check Patient Medical History While Mobile

- During their rounds, the doctor could view the patient's complete medical history including inpatient time, NIS records, examination results and PACS



Not limited to intelligent data transmission; it also incorporates the work procedures of the hospital staffs within → Total solution



# Telecare



# Total Solution

- Medical staffs--- Save TIME
- Patients --- Safe LIFE
- Medical institutions --- Save \$\$\$

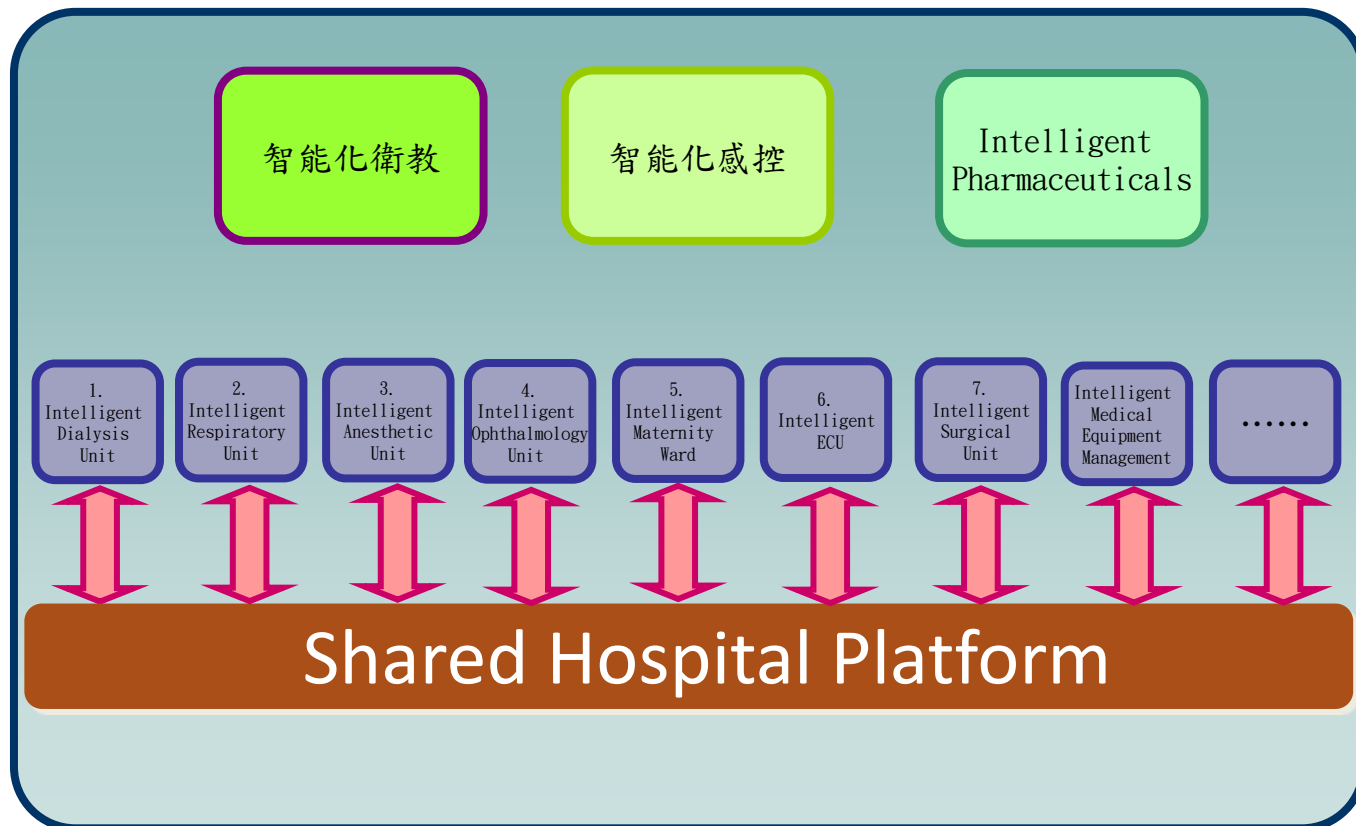


# 3 Stages of Intelligent Health Care

1. Data acquisition
2. Data integration
3. Intelligence



# Intelligent Hospital



We can make the world a better place!!!



# Thank You



悅康科技

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# Intelligent Systems-Weight Recordings

Voice Announcement of weight; weight data automatically transfers to HIS for management



# Current Stat and Health Tags for Management

雲林基督教醫院  
血液透析室 透析處方單

病患姓名: [Redacted] 病歷號: [Redacted] 初次透析日期: 2014年 月 日

日期	透析種類	時間	血流量	超濾量	透壓	尿素清除率	血磷	血鈣	血鉀	血肌酐	血尿酸	其他	備註
2014-01-01	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-01-08	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-01-15	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-01-22	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-01-29	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-02-05	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-02-12	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-02-19	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-02-26	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-03-05	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-03-12	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-03-19	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-03-26	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-04-02	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-04-09	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-04-16	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-04-23	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC
2014-04-30	高通	4h	250	250	25	1.2	2.0	9.0	3.5	2.5	5.0		DC

醫師: [Redacted] 醫師助理: [Redacted]

註: 1. 血磷 > 2.0 mg/dL 時，請調整磷劑用量。  
2. 血鈣 < 8.0 mg/dL 時，請調整鈣劑用量。  
3. 血鉀 > 4.0 mEq/L 時，請調整鉀劑用量。

余 [Redacted] 您好!

病患清單 | 我照顧的病患

李	女 76	16:21	C肝 跌	
30	鍾	女 65	15:42	C肝 跌
52	何	女 62	15:23	B肝
52	廖	男 67	15:56	B+C肝
30	周	女 62	15:21	C肝 跌
81	范	女 57	量完洗後體重	C肝
90	廖	女 78	量完洗後體重	C肝
7000062				C肝 跌



姓名	姓名			
性別	性別			
電腦代碼	診費項目	使用日期	電腦代碼	診費項目
257001	呼吸性呼吸器		304079	正式式 O2 療法
257002	呼吸器性呼吸器		404215	O2 療法
157003	呼吸器性呼吸器 (日)		404212	O2 療法
157004	呼吸器性呼吸器		404211	O2 療法
157007	呼吸器性呼吸器		304089	高流量 O2 療法
157013	呼吸器性呼吸器		404204	高流量 O2 療法
157016	呼吸器 CO2		404216	呼吸器 (single mask)
257017	Pulse Oximetry (天)		304333	脈搏血氧飽和度 (成人 Mask)
257018	Pulse Oximetry (天)		304334	脈搏血氧飽和度 (成人 Mask)
157014	O2 療法分佈器 (天)		404217	Mini 噴霧器
157005	氣管吸入器 (時)		404218	呼吸器 (Invec)
157004	氣管吸入器 (天)		404219	呼吸器 (Tri-Flow)
257021	氣管吸入器 (成人)		430323	呼吸器
257022	氣管吸入器 (成人)		304328	呼吸器
157024	人工呼吸器 (成人)		404210	呼吸器
147045	呼吸器			
157011	呼吸器			
157012	呼吸器 (天)			
157013	呼吸器性呼吸器			
117002	Plasma/Femur			
132017	全骨中藥注射 (Hibiscus)			

Cost calculations would not just be from quantity spent

Universal Enterprises  
 Part No. 111 & 114  
 Invoice # 0404 - Hongkong  
 Complete  
 Canon Bank Book  
 1 Apr 2000 to 31 Apr 2000

Date	Particulars	Vat Type	100 %	Bank	Page
14-2000	To: Computers Invoice Cr. No. 23630 of 14,260.00 HONGKONG	Receipt	1	48500.00	
14-2000	To: Ink-Suit Stationery Cr. No.	Receipt	4	2250.00	
14-2000	To: Avicel Invoice Cr. No. 24469 of 14,100.00 HONGKONG Invoiced Invoice is payment of 28700-5212145 of 2000 invoice	Receipt	5	45000.00	
12-4-2000	To: Avicel Invoice Cr. No. 23407 of 5,400.00 HONGKONG Invoice is payment of 28700-5212145 of 2000 invoice	Receipt	1	15000.00	
16-4-2000	By: New Fax Computers Cr. No. 30329 invoice paid in Hong Kong After Dir Computers expenditure	Payment	3	3000.00	
20-4-2000	To: Super Article Jumbo Inkbox 1K/10M10 Reduction Inkbox 15M/110 Cr. No.	Receipt	8	83000.00	
30-4-2000	To: Global Inkbox Cr. No. 14967 of 28,300.00 to Global Inkbox card payment against invoice	Receipt	10	7500.00	
	By: Global Inkbox Cr. No.	Payment		50000.00	
	By: Closing Balance			5,200.00	
				4,700.00	
				<u>5,17,366.75</u>	

It should be "Activity Based" including factors like hospital bank account/credit card bills; time; quantity; person; loans and such



# History of Patient Blood Circulation Abnormality

歷次血液通路異常記錄

范 景(女)-57歲 90 31

2015/04/28 (二) 18:21  
靜脈壓力連續三次異常升高  
血管成形術(PTA)  
OK



歷次血液通路異常記錄

范 景(女)-57歲 90 31

血液通路評估異常紀錄

異常時間:  
2015/04/28 18:21

併發症:  
靜脈壓力連續三次異常升高

治療處置:  
血管成形術(PTA)

處置結果:  
點插入片請 +新增片請 回復

OK



# Dialysis Records

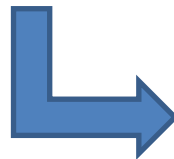
Before

時間	B.P.	脈搏/呼吸	A	CONDIT	UF	血液流量	TMP	DF	V.P	Heparin	NS	AK	簽名
12:12	193/89	104 / 18	3.0/2.0	14.0 / 36	0.77 / 0.00	300	81	513	60	9	-	-	俞許強
12:32	125/67	79 / 18	3.0/2.0	14.0 / 36	0.77 / 0.26	300	69	506	136	8	-	-	洪玉秀
13:05	132/74	78 / 17	3.0/2.0	14.0 / 36.2	0.77 / 0.68	300	70	499	130	7	-	-	洪玉秀
14:05	139/77	84 / 16	3.0/2.0	14.0 / 36.1	0.77 / 1.46	300	70	506	130	4.5	-	-	洪玉秀
14:51	142/81	84 / 18	3.0/2.0	14.0 / 36.1	0.77 / 2.04	300	78	506	133	3	-	-	洪玉秀
15:41	149/83	84 / 17	3.0/2.0	14.0 / 36.1	0.77 / 2.89	300	72	499	139	0	-	-	洪玉秀

After

時間	B.P.	脈搏/呼吸	A	CONDIT	UF	血液流量	TMP	DF	V.P	Heparin	NS	AK	簽名
12:12	193/89	104 / 18	3.0/2.0	14.0 / 36	0.77 / 0.00	300	81	513	60	9	-	-	俞許強
12:32	125/67	79 / 18	3.0/2.0	14.0 / 36	0.77 / 0.26	300	69	506	136	8	-	-	洪玉秀
13:05	132/74	78 / 17	3.0/2.0	14.0 / 36.2	0.77 / 0.68	300	70	499	130	7	-	-	洪玉秀
14:05	139/77	84 / 16	3.0/2.0	14.0 / 36.1	0.77 / 1.46	300	70	506	130	4.5	-	-	洪玉秀
14:51	142/81	84 / 18	3.0/2.0	14.0 / 36.1	0.77 / 2.04	300	78	506	133	3	-	-	洪玉秀
15:41	149/83	84 / 17	3.0/2.0	14.0 / 36.1	0.77 / 2.89	300	72	499	139	0	-	-	洪玉秀

PROGRESS NOTE



Medical staff using mobile devices (tablets or PDAs) can scan the RFID or bar code of the dialysis machine and through our Bluetooth, receive the data of the dialysis.



## 效益

IMPLEMENTATION	PATIENT & FAMILY MEMBERS SATISFACTION (%)	MEDICAL STAFF SATISFACTION (%)	MONTHLY MEDICAL DOCUMENT CHECKs (MIN.)
Before	81	78	120
After	88	92	30

- 〈 1 〉 Designed to fit in with the workflow of medical staffs
- 〈 2 〉 Information transfers easily and accurately
- 〈 3 〉 Decreases time of medical data transcription by hand
- 〈 4 〉 Avoids possible human errors to increase patient safety
- 〈 5 〉 PDA usage increases clinical record completion rate
- 〈 6 〉 Increases patient and family member interactions and quality of care



# NIS & Notes



Clinical Records and notes of the staffs



# Treatment Execution Records



If you don't press the "Execute" or "Refuse" button, the mobile device would alert the medical staff (by vibrating or sound notification)。



If one presses "Refuse" button, the app would require the medical staff to provide a reason。





# Dialysis Data Chart- Print Function

Before

Print Button

After

光田綜合醫院 血液透析記錄表

姓名: 田中 敬二 030/104731  
 性別: 男 02/2003 血液科  
男 女 其他 自費

透析日期: 2015年12月2日 總透析次數: 490次

交換事項: 上次透室情況: 良好

透析時間: 開始: 11:05 結束: 11:55 預計脫水量: 1.3kg 血壓: 110/70

時間	11:05	11:15	11:25	11:35	11:45	11:55
血壓	110/70	110/70	110/70	110/70	110/70	110/70
血液流速 ml/min	250	250	250	250	250	250
超濾量 ml/min	25	25	25	25	25	25
體溫 °C	36.4	36.4	36.4	36.4	36.4	36.4
靜脈血氧飽和度 %	98	98	98	98	98	98
動脈血(TMP)mmHg	130	130	130	130	130	130
超濾率(UFR)Kt/V	1.1	1.1	1.1	1.1	1.1	1.1
透析液電導度 mcS/cm	141	141	141	141	141	141
透析液溫度 °C	36.0	36.0	36.0	36.0	36.0	36.0
磷水	-	-	-	-	-	-
肝素注射劑量 mg	-	-	-	-	-	-
EDF 或 DF 每次件	-	-	-	-	-	-
透析液 L/Pro or Post	-	-	-	-	-	-

On: 田中敬二 Off: 田中敬二 Care: 田中敬二

Dialysis Observation/Assessments: 田中敬二

Medical Record & Order: 田中敬二

透析中及透析結束評估: 田中敬二



光田綜合醫院 血液透析記錄表

姓名: 田中敬二 性別: 男 科別: 血液科  
 病歷號: 000066212 主治: 田中敬二

透析日期: 2015/12/2 總透析次數: 490次

交換事項: 上次透室情況: 良好

透析時間: 開始: 07:20 結束: 11:05 體溫: 36.4 預計脫水量: 3.6 血壓: 130/80

項目	開始: 07:20	08:51	09:34	10:24	11:05	備註
血壓	130/80	130/80	130/80	86/41	116/57	透析機種: 400HS
血液流速 ml/min	240	240	240	198	198	透析機種: F80
超濾率(UFR)Kt/V	72/18	80/18	72/18	53/18	75/18	使用液: 田中敬二
體溫 °C	36.4	36.4	36.4	36.4	36.4	透析液流速: 600 ml/min
靜脈血氧飽和度 %	67	79	88	62	86	肝素機種: Innchep
動脈血(TMP)mmHg	48	48	58	43	51	濃度: 1000
超濾量(UFR)Kt/V	0.75/0.003	0.75/1.118	0.993/2.628	0.983/2.628	0.383/2.88	維持量: 0
透析液電導度 mcS/cm	14	14	14.2	14.2	14.2	輸出開始時間: Clear
透析液溫度 °C	36.1	36.2	37	37	37	輸出結束時間: 田中敬二
磷水	-	-	-	-	-	輸出種類及量: 田中敬二
肝素注射劑量 mg	0.0	0.0	0.0	0.0	0.0	輸出位置: 田中敬二
超濾量	0.2	0.2	0.2	0.2	0.2	血管通路: PermCath或Cuffed導管
HDF 或 HF	HD	HD	HD	HD	HD	右腕下靜脈

On: 田中敬二 Off: 田中敬二 Care: 田中敬二

Dialysis Observation / Assessments: 田中敬二

Medical Record & Order: 田中敬二

1 AMP ST IM 1

田中敬二

All the dialysis records are on the HIS; a simple click on print on your mobile device would allow you to print the results



# Database Management

Bed Side



RS232



Bluetooth

Dialysis Unit Staff



WiFi



HIS、NIS... Integration



Cost calculations would not just be from quantity spent

姓名	姓名		
姓別	姓別		
電腦代碼	電腦代碼		
治療項目	治療項目		
使用日期	使用日期		
257001	呼吸性呼吸器	304079	正式O2 鼻氣
257002	呼吸器用鼻罩呼吸器	404215	O2 鼻噴器
157003	呼吸器用面罩(日)	404212	O2 雙插管
157004	呼吸器用面罩(夜)	404211	O2 單管
157007	呼吸器用面罩(手)	304089	面罩用T-管
157013	呼吸器用面罩(鼻)	404204	高流量鼻導管
157016	呼吸器用CO2	404216	呼吸器用面罩(Single mask)
257017	Pulse Oximetry (天)	304050	呼吸器用面罩
257018	Pulse Oximetry (天)		呼吸器用面罩
157014	O2 濃度分析器(天)		Mint 呼吸器
157005	呼吸器用鼻(日)		呼吸器用鼻罩 (Invec)
157004	呼吸器用鼻(天)		呼吸器用鼻罩 (Tri-Flow)
257021	呼吸器用鼻罩(天)	47035	呼吸器用鼻罩
257022	呼吸器用鼻罩(天)	304328	呼吸器用鼻罩
157024	人工呼吸器用鼻罩	404210	呼吸器用鼻罩
147045	呼吸器用鼻罩		
157011	呼吸器用鼻罩		
157012	呼吸器用鼻罩(天)		
157013	呼吸器用鼻罩		
117002	Plasma/Plasma		
132017	全價年費(按日)(Balance)		

Date	Particulars	Vid Type	100%	Bank	Page Credit
14-000	To: Company Invoiced Cr. No. 12630 of 14,260 in RDFC/BM	Receipt	1	48,000.00	
14-000	To: Job-Site Supplies Cr. No.	Receipt	4	12,500.00	
14-000	To: Arvind Kumar Cr. No. 12499 of 14,100 in RDFC/BM Invoiced Balance per statement of 28/06/02 12499 of 2000 in/over	Receipt	1	16,000.00	
12-4-2002	To: Arvind Kumar Cr. No. 12497 of 15,400 in RDFC/BM Invoiced Balance per statement of 28/06/02 12497 of 2000 in/over	Receipt	1	16,000.00	
16-4-2002	To: New Fax Computer Cr. No. 16323 Invoiced per After-Dia Computer expenditure	Payment	3	3,000.00	
17-4-2002	To: Inger Aravillo Jankin Builders (K/1040) Redstone Builders 1540/110 Cr. No.	Receipt	1	8,000.00	
18-4-2002	To: Global Builders Cr. No. 14967 of 18,000 in to Global Builders cost account against invoice By: Global Builders Cr. No.	Payment		5,000.00	
	To: Closing Balance			5,200.00	
				4,700.00	
				5,11,366.75	

It should be "Activity Based" including factors like hospital bank account/credit card bills; time; quantity; person/companies; loans and such



# 計價配合 Inventory Management

## To the Managing Department

- Records of goods cost
- Goods received/goods sold/goods returned/inventory checks
- Establish safety reserve protocol
- Alert capability
  - Lower than minimum safety amount
  - Abnormal usage amount
  - Monthly Compilation/ Charts

## To the Supporting Logistics

- Daily records allow the hospital to keep track of the usage of each department
- Prepare early so we can fill in the necessary inventory



# NIS

## Automatically Produce NIS

One action would automatically complete several medical forms during the medical staffs' clinical care. Before the dialysis concludes, the staff checks and confirms the data, add in their notes and saves °

## NIS Includes Time When Data is Recorded

### •Weight Measurement

-automatically provides vital signs statistics and calculates the necessary water weight required for shedding

### •Start of Dialysis

-automatically includes the start time、blood pressure、...

### •Blood Transfusion

-after blood transfusion checkup, it automatically records the time of transfusion、blood bag #、checkup personnel、...

### •Abnormality Records

-during dialysis, simply go to the dialysis chart page then select abnormal record. The system will include it within the clinical records.

### •End of Dialysis

-automatically includes the end time of dialysis、blood pressure、...



During treatment, the data would automatically be compiled



# System Integration, Beneficial Use (2/2)

- Intelligent alert system in critical situations & response system



# 計價配合 Inventory Management

## To the Managing Department

- Records of goods cost
- Goods received/goods sold/goods returned/inventory checks
- Establish safety reserve protocol
- Alert capability
  - Lower than minimum safety amount
  - Abnormal usage amount
  - Monthly Compilation/ Charts

## To the Supporting Logistics

- Daily records allow the hospital to keep track of the usage of each department
- Prepare early so we can fill in the necessary inventory



# Numerous Clinical Recordings

- Vital Signs
- Nursing Assessment
- Dialysis Record
- Respiratory Care Record
- Anesthetic Record
- ...

### 入院護理評估 病人資料單

姓名	張先生
性別	男
年齡	65
病歷號碼	123456
入院日期	2023-10-27
入院原因	心臟病發作
主治醫師	李醫生
護理師	王小姐
床號	101
病房	內科
過敏史	青霉素
目前用藥	阿司匹靈, 硝酸甘油
既往病史	高血壓, 糖尿病, 哮喘
家族史	冠心病, 中風
社會史	不吸煙, 少量飲酒
教育程度	小學
職業	退休
婚姻狀況	已婚
子女數目	2
宗教信仰	無
語言能力	國語
理解能力	良好
依從性	良好
支持系統	家庭成員
經濟狀況	一般
保險狀況	有
其他重要事項	無

### 入院護理評估 身體評估單 (護理員填寫)

生命徵象	2023/10/27 14:15
體溫	37.5°C
脈率	98 bpm
呼吸	20 rpm
血壓	120/80 mmHg
血氧	98%
意識	清醒
瞳孔	等大, 對光反射良好
神經	四肢肌力 5/5
心臟	心音正常, 無雜音
肺部	雙肺呼吸音清晰
腹部	軟, 無壓痛
直腸	正常
泌尿	尿量充足
皮膚	溫暖, 無傷口
其他	無

### 護理指導評值單

護理指導	執行日期	指導內容	評估結果	備註
生命徵象監測	2023/10/27	每4小時測量一次	良好	
藥物管理	2023/10/27	按時服藥, 不擅自停藥	良好	
飲食指導	2023/10/27	低鹽低脂飲食	良好	
活動指導	2023/10/27	適量活動, 避免劇烈運動	良好	
心理支持	2023/10/27	提供心理安慰, 鼓勵配合治療	良好	
健康教育	2023/10/27	告知疾病知識及預防方法	良好	

### 設備清單

設備名稱	數量	規格	備註
監護儀	1	監護儀	監護生命徵象
輸液器	1	輸液器	輸液
吸痰器	1	吸痰器	吸痰
氧氣瓶	1	氧氣瓶	供氧
心電監護	1	心電監護	心電監護
呼吸器	1	呼吸器	呼吸支持
洗滌機	1	洗滌機	洗滌
輸血器	1	輸血器	輸血
除顫器	1	除顫器	除顫
急救箱	1	急救箱	急救
其他			



# TPR Intelligent Data Transfer- Increasing Efficacy & Reducing Errors Made

