



慈濟醫療志業

Tzu Chi Medicine Mission



- **PACIFIC care model**
- *Population-based-All inclusive-Comprehensive-Innovative-Functionally-Integrated Care model.*
(*PACIFIC*)

by

**Chin-Lon Lin, Hsing-Chu Chen,
Chun-Hsun Chen.**

The Buddhist Tzu Chi Medical Foundation

Email: cllinmd@tzuchi.com.tw



—— 尊重生命 人本醫療



慈濟醫療志業

Tzu Chi Medicine Mission



Long Term Health Care Model in Eastern Taiwan

1. Aging population
2. The disease pattern become more complicated
3. The demand for medical care increased substantially
4. Shift institution-based health care to community-based or home-based health care.



—— 尊重生命 人本醫療

Eastern Taiwan

Large geographic area

Population
560,000

Tzuchi Medical Center

300 Kilometer

Outpatient visits
10,430,000/year



佛教慈濟綜合醫院

BUDDHIST TZU CHI GENERAL HOSPITAL



慈濟醫療志業

Tzu Chi Medicine Mission



Long Term Health Care Model in Eastern Taiwan

How to provide much needed medical care to such large population in such wide geographic area ?



—— 尊重生命 人本醫療



慈濟醫療志業

Tzu Chi Medicine Mission



New Advances in IT Technology
Computer, notebook, tablet
Internet---web, Wireless
Cloud storage---Social Networking
Big data analysis
Mobile devices--Smart phone
Internet of Things
4, 5 G, Wearables



—— 尊重生命 人本醫療



慈濟醫療志業

Tzu Chi Medicine Mission



New Frontier in Hospital Information Technology

**How can we utilize
These new technologies
to improve patient's care ?**



—— 尊重生命 人本醫療

Health Education, Informed Consent

大林慈院—民眾衛教專區 - Microsoft Internet Explorer

檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)

慈濟醫療志業
Buddhist Tzu Chi General Hospital

大林慈院民眾衛教專區

特殊檢查及手術知情同意專區 **NEW** | 一般外科 | 肝臟疾病類 |
心臟血管疾病類 | 骨科及復健類 | 腎臟及泌尿系統疾病 | 傳染性疾病
糖尿病與我 | 居家照護類 | 其他類 |

[特殊檢查及手術知情同意專區]

■ 心導管檢查	■ 退化性膝關節炎之關節鏡整形手術	■ 認識安全的麻醉
■ 白內障的手術治療	■ 認識腦波圖	■ 認識頸動脈超音波
■ 認識神經傳導檢查	■ 認識誘發電位	■ 認識肌電圖
■ 慢性鼻竇炎之手術治療	■ 正子造影檢查	■ 認識冠狀動脈繞道手術
■ 認識強度調控放射治療-IMRT(new)	■ 認識胃鏡檢查(new)	

Copyright © 2006 Buddhist Tzu Chi General Hospital. All rights reserved.

Internet





慈濟醫療志業

Tzu Chi Medicine Mission



The Benefit of IT

Accurate

Fast

Any Time, any Place



—— 尊重生命 人本醫療



慈濟醫療志業

Tzu Chi Medicine Mission



Application of IT in Medicine

Demography

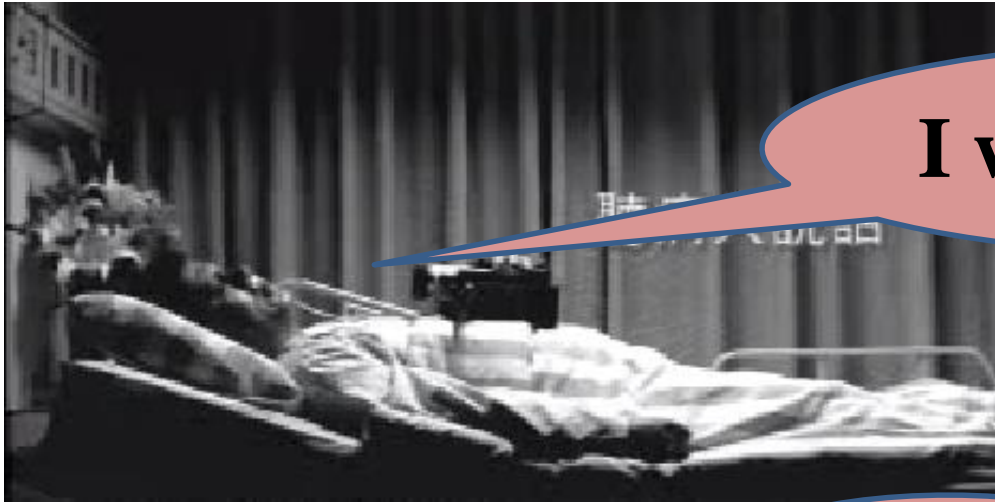
Financial

Appointment & Scheduling



—— 尊重生命 人本醫療

The patient in palliative care unit



I want to go home

Questions

The family



How can he go home?

No equipment at home

Who can help in case....

Food?

The nurses' aid didn't understand my language

Clinic visit?



10

佛教慈濟綜合醫院

BUDDHIST TZU CHI GENERAL HOSPITAL

**Wireless
transmission**



**monitoring of
physiological data**

**Palliative Home Care
Integrating Service
Platform**

**Cloud
storage**

Hospital Information System



**Administration /
admission**



Case management



Communication



**Health Education /
Information**



Logistics



4G

Doctor nurse



**Tablet
Smart phone**



佛教慈濟綜合醫院

BUDDHIST TZU CHI GENERAL HOSPITAL

Wireless Transmission of Physiological Data



Remote monitor of vital sign of the patient (BP, PR, blood sugar, blood oxygen, heart/breathing sound)



The cloud platform

Physiological monitoring system

Maintenance

Data search

Tables of data

Medical monitoring system

Basic data

Medical record

Update of record

Case management system

symptoms

Comfort

nursing

catheter

rental

Terminal c

Social & Religious

Relatives' assistance

Collaboration system

Need assesement

Body
Mind
Soul

Group support

Multilingual health information

By
Disease
type

By
languages

Key word search

Logistic support system

Stores

Key word search

Medical supplies

Domestic services

Patient monitoring system (adopted PCOC from Australia)

PCOC評估表											
日期		103/08/14	103/08/14	103/08/15	103/08/16	103/08/17	103/08/18	103/08/18	103/08/19	103/08/19	103/08/20
時間		13:30	22:30	12:00	21:57	18:00	19:49	21:30	15:00	21:40	00:00
臨床評估分數	Phase(1-5)	2	2	2	2	2	2	1	1	1	2
	RUG ADL (total 4-18)										
	床上活動	3	3	3	3	3	3	3	3	1	5
	如廁	3	5	4	3	3	3	4	5	3	5
	轉位	3	3	4	3	3	4	4	3	3	5
	飲食	3	3	3	2	2	2	3	1	1	3
	Total RUG:	12	14	14	11	11	12	14	12	8	18
	Problem Severity Score(0-3)										
	疼痛	0	0	0	0	0	3	0	0	1	0
	其他症狀	2	0	2	0	0	0	1	1	1	0
病人/代理人評分數	心理/靈性	1	0	2	0	3	0	1	0	1	0
	家人/照顧者	2	0	2	0	1	1	1	1	1	0
	Australian modified Karnofsky(10-100)	40	50	40	50	50	50	40	60	40	40
	Symptom Assessment Scale(0-10)										
	失眠	2	0	1	0	0	3	0	0	0	0
	食欲不佳	1	0	1	0	0	4	0	0	0	0
	噁心	0	0	0	0	0	0	0	0	0	0
	腸胃道症狀	2	0	2	0	0	4	0	0	1	0
	呼吸症狀	1	0	2	0	0	4	0	0	1	0
	疲倦	2	0	1	0	0	4	0	0	1	2
疼痛	0	0	0	0	0	3	0	0	1	0	
資料來源		病人家屬		病人家屬						病人家屬	照顧者
分期結束原因											2.變成不穩定期
Staff Initials:		萬玉鳳	林廷霖	萬玉鳳	陳綵珍	陳綵珍	陳綵珍	萬玉鳳	林廷霖	萬玉鳳	張英琦

Instant Cloud Recording

Real time recording, continuous record

醫護端系統

以個案管理角度，線上即時紀錄連續性照護資訊，便於醫療團隊合作。

▶ 待辦事項 目前功能: 個案首頁 > 後續照護 > 身體評估 > 評估紀錄 [關閉選單]

▼ 個案首頁 重選個案 新增身體評估

個案資料	姓名	■■■■■	收案日期	104/05/01	個案編號	■■■■■
後續照護	性別	男	出生日期	■■■■■	主責醫師	王英偉
個案管理					主責護理師	李宜君

生理資料

身體評估 護理問題 護理紀錄 社心靈問題 社心靈問題紀錄 疼痛評估及處置

▶ 生理量測 疼痛評估及處置(多部位) 後續疼痛反應 pcoc評估表 pcoc問題歷史查詢 傷口紀錄 管路管理

▶ 志工服務 哀傷評估 遺族悲傷關懷 善終準備 Progress Notes 服務內容評估 就診紀錄 就診紀錄(依項目)

估 訪視藥品紀錄 病患留言紀錄

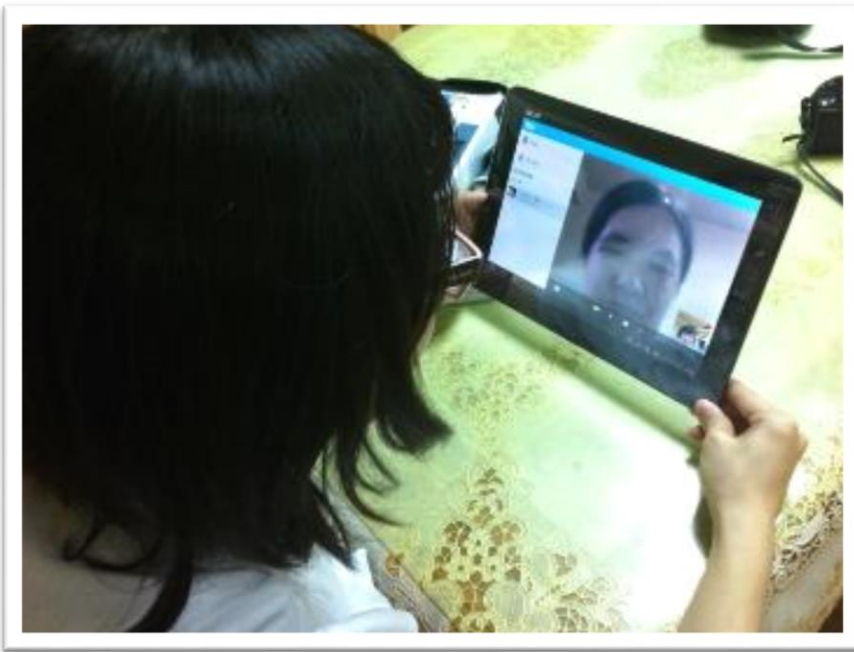
護理問題

06/29 104/07/29

篩選查詢



Patient's and family's satisfaction has been very high



Face to face video consultation with palliative team



佛教慈濟綜合醫院
BUDDHIST TZU CHI GENERAL HOSPITAL

Multilingual health education & information system

Mandarin, Taiwanese, English, Indonesian, Vietnamese



Instruction for foreign health aid using their own language

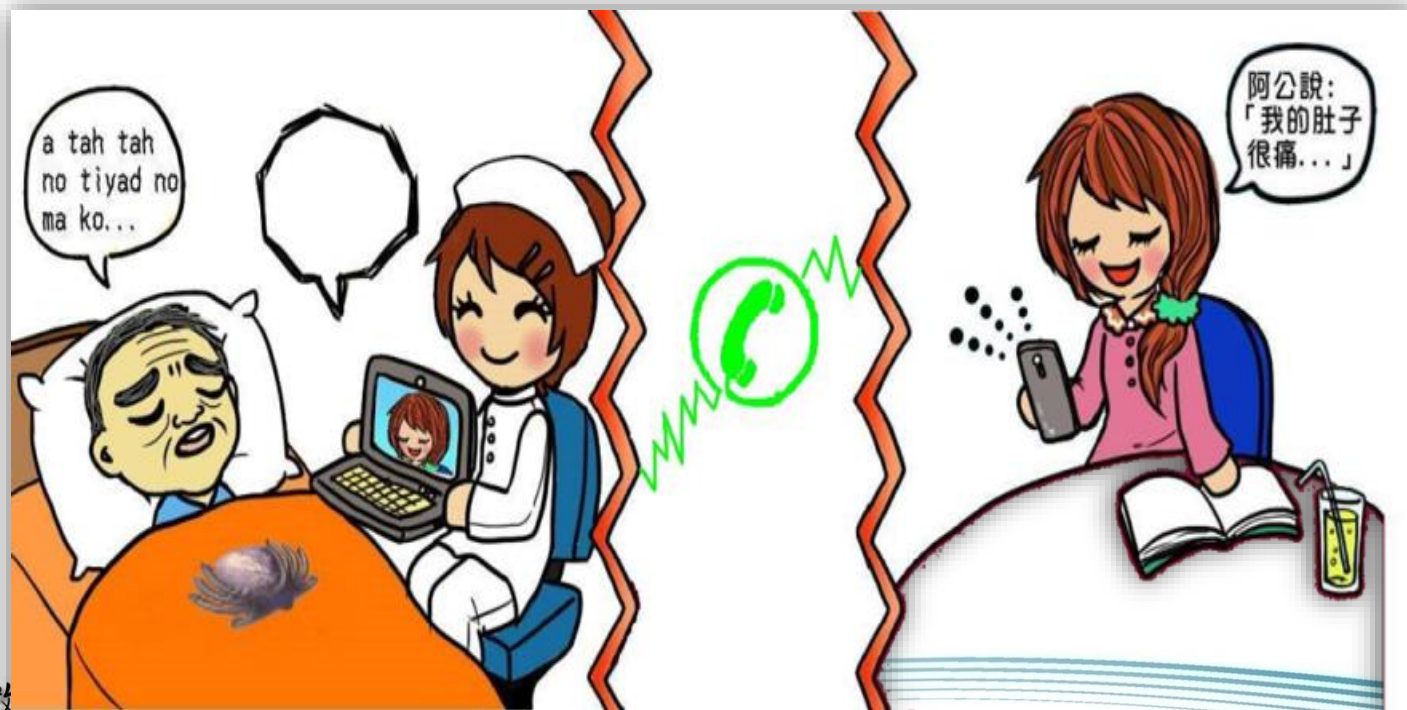


佛教慈濟綜合醫院

BUDDHIST TZU CHI GENERAL HOSPITAL



Web based translator Foreign Care-taker



花蓮慈濟醫院



花蓮瑞穗病患家
剛到台的印尼看護

聯絡資訊

我的醫師：王英偉 醫師

我的護理師：張碧容 護理師

以下緊急狀況，請聯絡

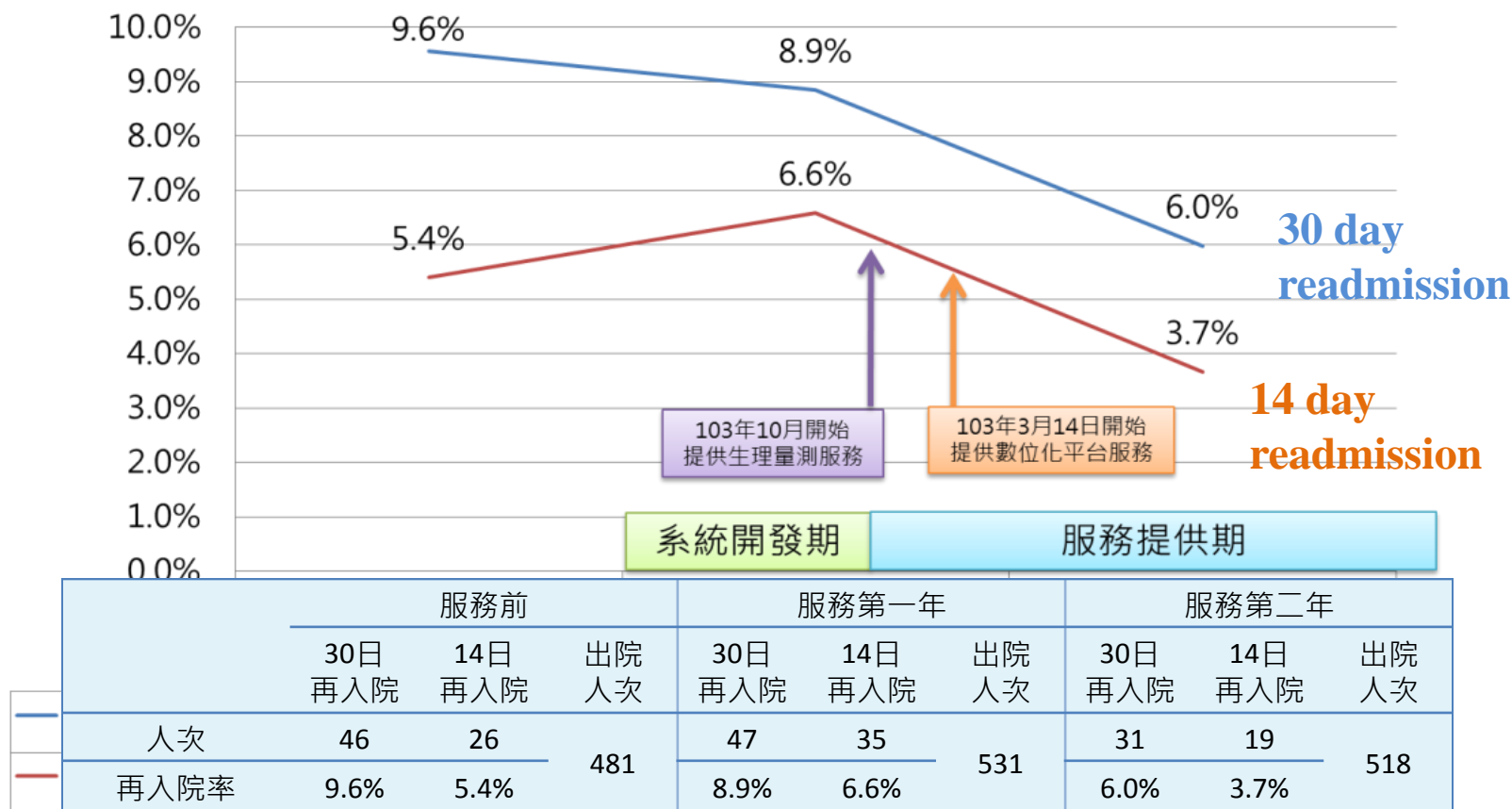
電話：03-8561825 分機：2341、2342

留言
通知

緊急狀況
SKYPE通知

慈濟印尼分會
翻譯志工

Significant Drop in Readmission Rates



Reduce Medical Expenditure



佛教慈濟綜合醫院

BUDDHIST TZU CHI GENERAL HOSPITAL



慈濟醫療志業

Tzu Chi Medicine Mission



Satisfaction Score

- 90%** Familiar with the cloud medical record
- 87%** Help me taking care of patients at home
- 87%** satisfied with the equipment at home
- 93%** Satisfied with real time communication
- 90%** Satisfied with the services provided



—— 尊重生命 人本醫療



Very well received

The Patients, Family, Government, Care-provider, Insurance Co.





慈濟醫療志業

Tzu Chi Medicine Mission



Long Term Health Care Model in Eastern Taiwan

1. Nursing Homes
2. Day care Centers
3. Community Centers
4. Homes



—— 尊重生命 人本醫療

Tele-Exercise Instruction



Tele-Rehabilitation



[illegible]

Blue tooth Transmission



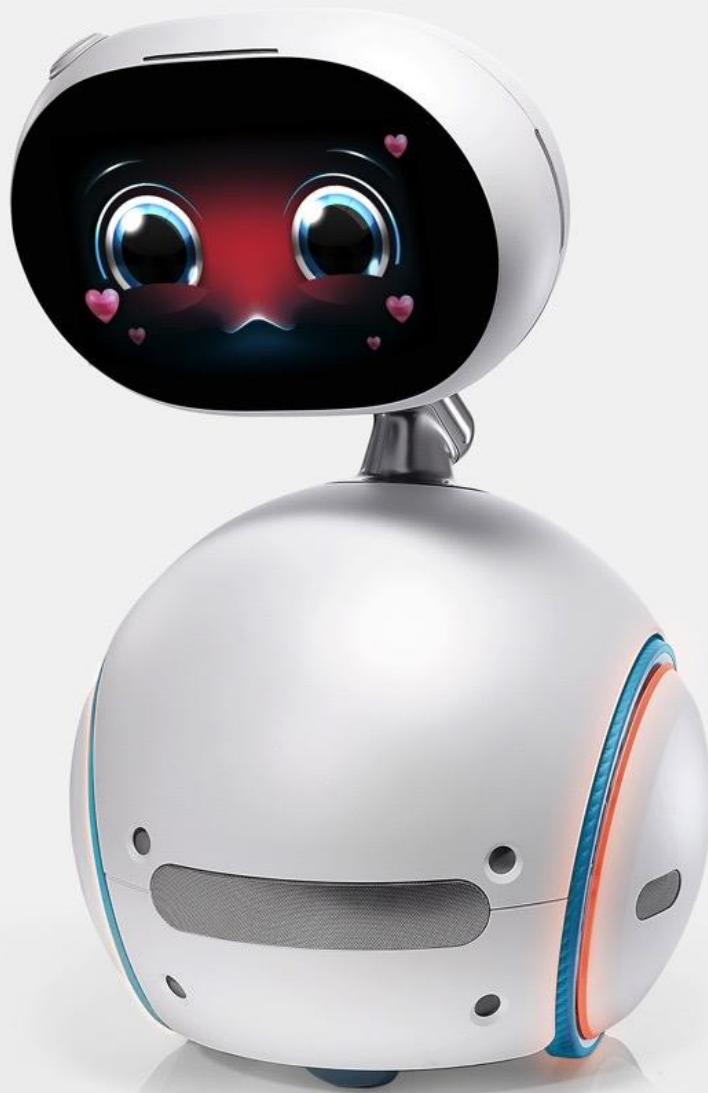
[illegible]

INTERNET *of* THINGS

Hello from JIBO, the
first family robot.

Jibo from Acer





Zenbo from Asus



慈濟醫療志業 Tzu Chi Medicine Mission

Pepper, US \$1,600

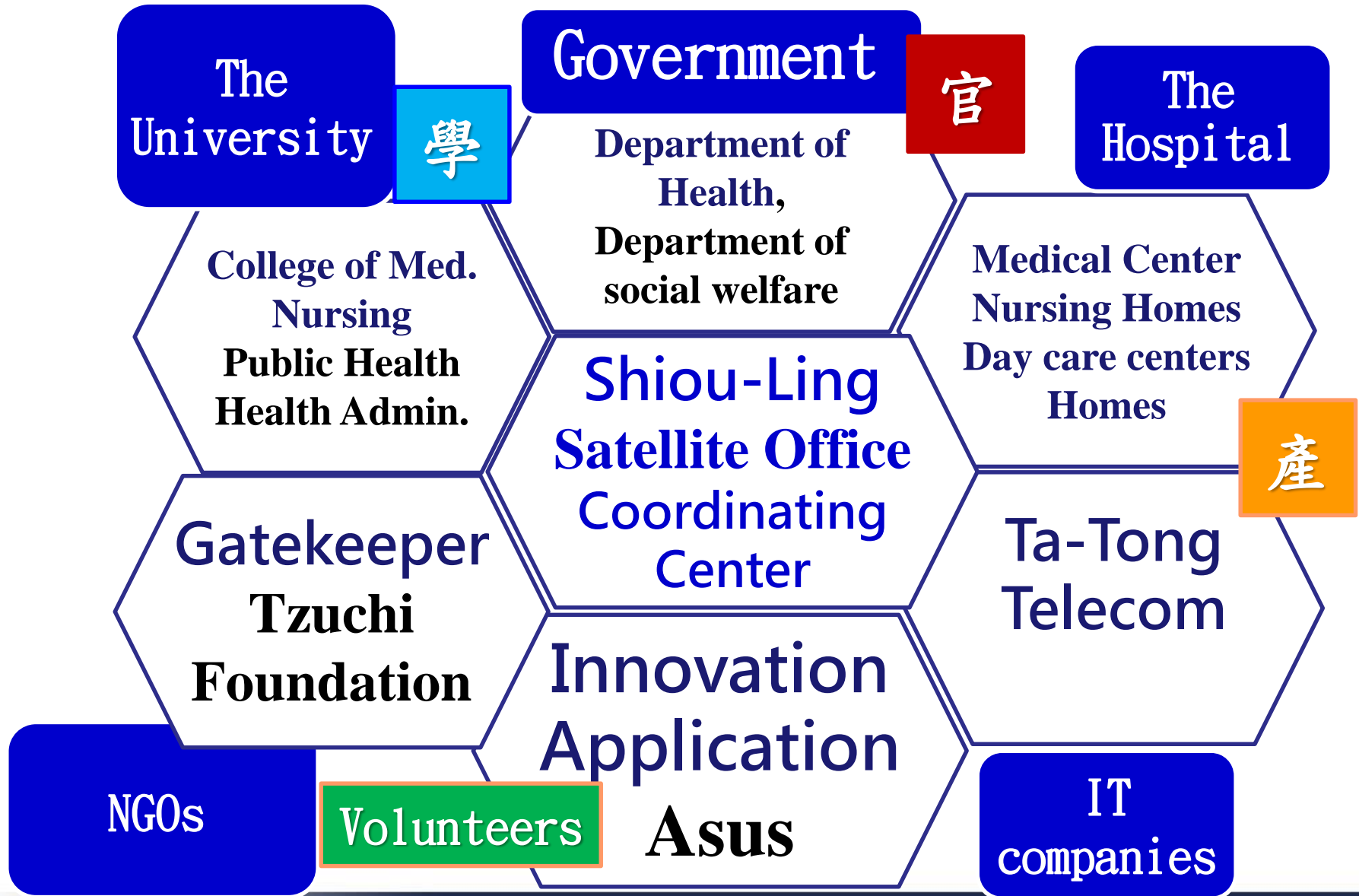


Robonurse can do the following

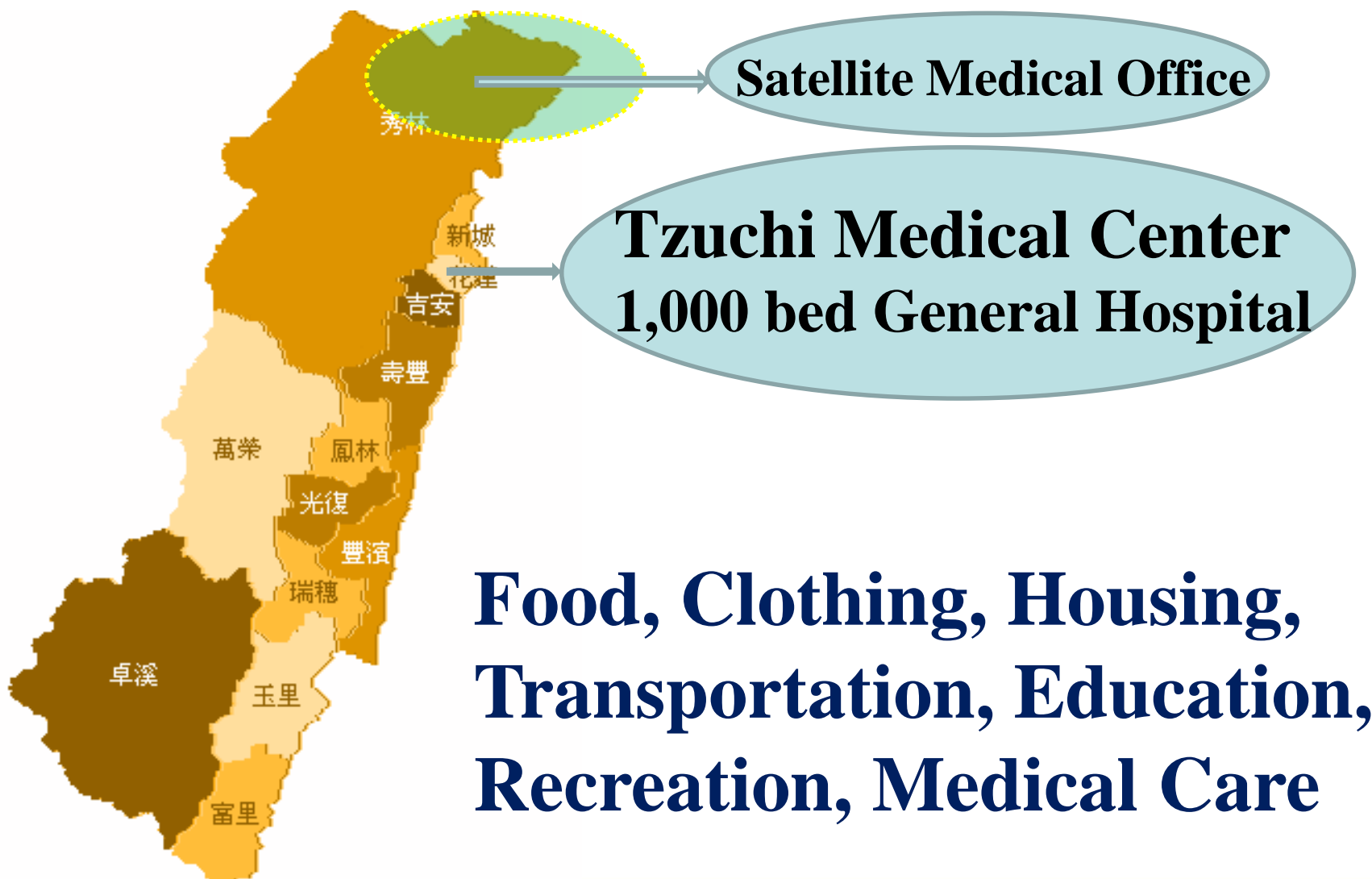
- 1. Provide companionship, Reminding (To take medication, to exercise, to go to the bathroom, to eat or drink)**
- 2. Monitoring (Blood pressure, Pulse rate, Oxygen saturation, Activity, Rest,) using wearable devices**
- 3. Reporting to appropriate parties, Alarming and alerting responsible parties. Keeping records**
- 4. Give medications at prescribed time**
- 5. Communicating with family members, nurse, doctors, etc. Coordinating household chores such as vacuuming, washing and drying, cooking, etc.**
- 6. Coaching prescribed exercises regimen.**
- 7. House calls, reducing emergency room visits and hospital re-admissions,**



Team Work

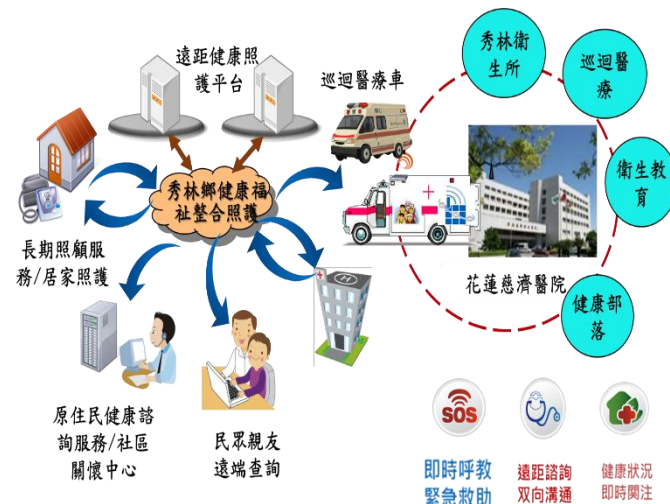
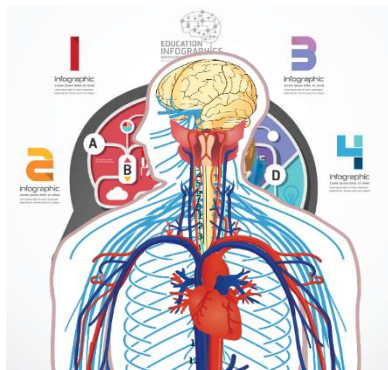


緊急醫療服務網絡

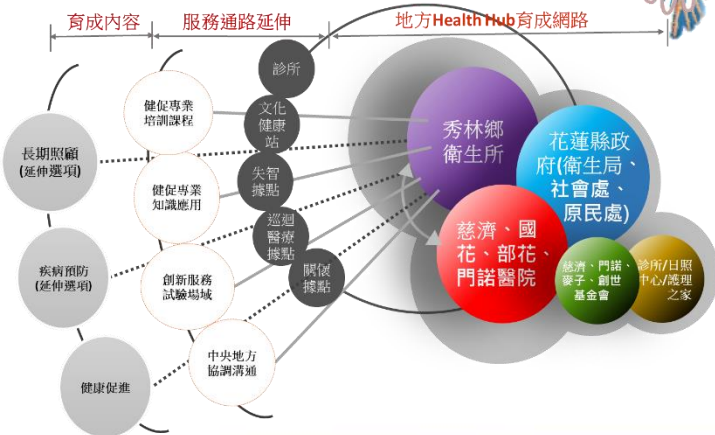


Using Cloud Medical Record as the backbone

Financial, Care, Management, and Information Flow



整合照護支付暨現金流(Payment/cash flow)



Applied Health Information Technology

Smart Care

健康資訊

資訊平台

連續照顧

智慧照顧

科技化

標準化

普遍化

在地老化

Hospital



Nursing home

Day care



日間照顧

Home care



Mobile
Medicine

- Id
- Personal record
- Physiology data
- Medical record

Integrated
care

- Electronic record
- Communication
- Transportation
- Record keeping

Health
Record

- personal
- Wearable
- Drug reminder

Standarization
of medical
record
Evaluation

Standarization
of forms
Referral

Standard
record keeping

- Physiological data
- Referral
- Reminder

Integrated

- Discharge planning
- Resource management
- Outpatient record
- Drug history
- Rehabilitation

Continued care

- Physiology data
- Drug history
- Nursing record
- Assistive technology
- Referral
- Transportation

Home service

- Physiology data
- Drug history
- Care record
- Assistive tech.
- Transportation
- Referral
- 出勤紀錄(班表)

Wrist band
Wrist watch
Smart Jacket
Smart shoes
Smart pad
Smart eyeglasses
Smart Speakers
Robot
Smart assistive
tech
Personal care
Disease prediction
Disease prevention
Participation

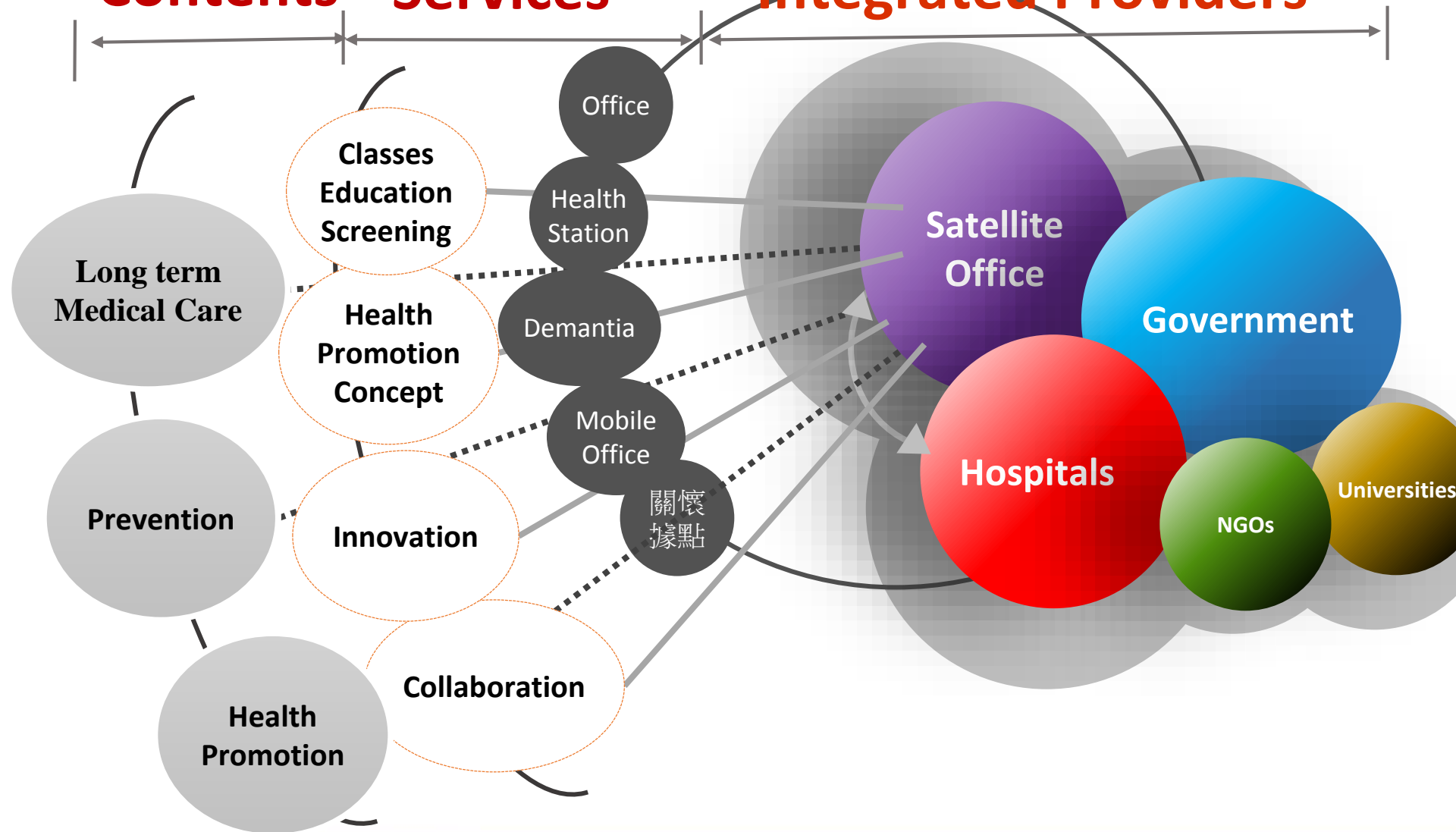


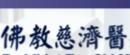
Health Hub

Contents

Services

Integrated Providers





Key Performance Indicators(KPI)

Goals

cost

Quality

Accessibility

Indicators

- ❑ Lower out of area medical service
- ❑ Increase Satisfaction Score
- ❑ Slow down disability Dementia

Reference Indicators

- ❑ Life Span
- ❑ Incidence of Pul Tuberculosis
- ❑ Neonatal Death rate





慈濟醫療志業

Tzu Chi Medicine Mission



Conclusion (1)

We extend our quality medical services in the hospital to nursing homes, day care centers and homes by utilized modem technology such as Smart phones, wireless transmission, 4G communications, wearable devices and cloud medical record storage, coupled with community resources to provide real time personalized health care services and the satisfaction scores have been very high.



—— 尊重生命 人本醫療



慈濟醫療志業

Tzu Chi Medicine Mission



Conclusion (2)

Due to the shortage of funding and manpower, we believe that new information and communication technologies (ICT) will play an important role in the future care of our elderly.



—— 尊重生命 人本醫療



慈濟醫療志業

Tzu Chi Medicine Mission



Conclusion (3)

Our integrated health care model with joint efforts of all involved (Government, healthcare institutions, universities, NGO's) by fully taking advantage of modern information technology, will be very well accepted and becomes a norm in the future.



—— 尊重生命 人本醫療

A background image of a traditional Japanese tea ceremony. A dark brown ceramic teapot is pouring a stream of light green tea into a matching dark brown ceramic cup. The cup sits on a dark brown saucer. In the foreground, a bamboo basket filled with green tea leaves is visible. The background is dark with some green foliage.

Thank You

Q&A