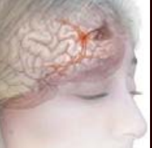

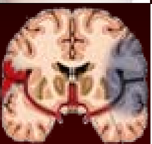

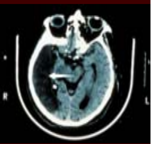

Pre-admission CT Brain Service for Acute Stroke Patients

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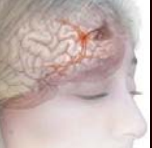
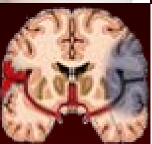
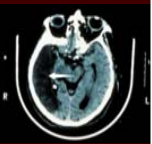
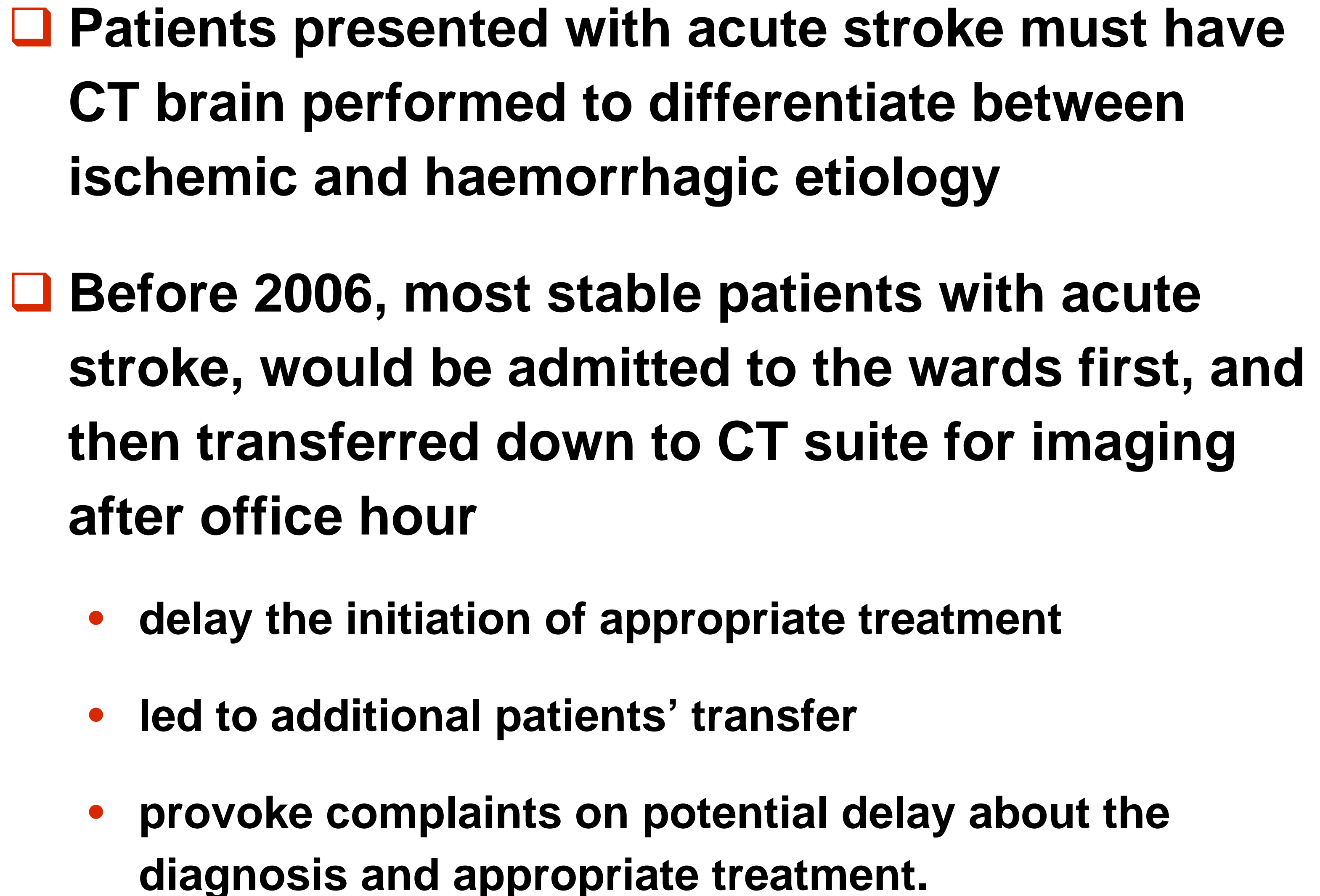
Queen Elizabeth Hospital

A Close Collaboration:

Department of Radiology & Imaging,
Department of Accident & Emergency,
Department of Medicine,
Queen Elizabeth Hospital

Introduction



Introduction

醫院被指延醫 中風婦危殆

【本報訊】　　　　醫院涉嫌延誤診治半小時，令一名打麻將時中風的婦人病情惡化，如今處於「等死」狀態。病人丈夫直斥醫院內部指引過分僵硬，急症室醫生礙於內部指引沒有直接送病人去做腦掃描，令病人最後腦部大量出血而昏迷。他斥責醫院制度僵化，　　醫院則澄清，腦出血病情半小時內急劇惡化情況並不常見，當時急症室醫生做法適當。

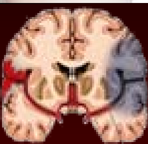
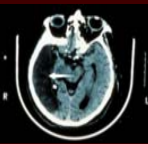
病人打麻雀時中風

事發在上星期四(8月4日)晚，病人因打麻雀時出現中風，手腳不受控制而被送入　　　醫院急症室，轉上病房後才做腦掃描，發現病人腦部爆血管，1/4面積積水，腦細胞壞死，醫生指做手術99.9%會死在手術台上，星期五病人腦幹死亡，目前處於昏迷狀態，需靠意志維持生命。

病人丈夫昨日表示，當日其正在澳門工作，太太由兒子及舅仔陪同入院，不過向二人了解當晚情況後，質疑事件存在人為疏忽。他說：「急症室作初步判斷已知是輕微中風，為甚麼不即時做腦掃描？送上病房再重複步驟，時間相差有半個小時。如果即時做，起碼不會像現在只有一個選擇，專業評估水準好有問題。」

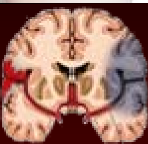
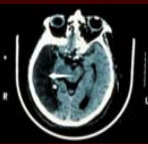
Pre-admission CT service

- Pre-admission CT brain service for patients presenting to A&E with diagnosis of acute stroke was introduced since 1st Jan 2006
- The logistics was fully discussed & agreed between A&E, Radiology and Medical Department
- Patients with Acute Stroke diagnosed in A & E Department, will have plain-cut CT brain arranged & performed before admission to ward
- The attending HO/MO can review the films immediately via the ePR Radiology function before the film is available

Pre-admission CT service

- If the CT scan is not performed due to unavailability of the CT scan facilities or inadequate manpower for escort, CT scan request form will be send to CT suite directly by A & E colleagues while the patient is admitted first
- It is not necessary to send CT request form again after the patient's admission
- The patient will be called down for CT scan by staff in the CT suite as soon as possible

URGENT

Dear Ward Nurse,

Urgent CT brain has been booked for this patient by A& E Department. Please send the patient to CT Suite (H1, Room 18) as soon as possible

A&E Department, QEH

緊急

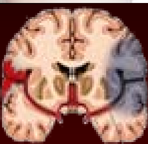
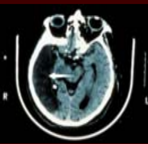
致病房護士,

此病人入院前已由急症室預約緊急腦部電腦素描, 請盡快安排病人去 **H1/18** 號電腦素描房照素描。

伊利沙伯醫院急症室示

Methodology

- To review the performance after the introduction of pre-admission CT brain service
- Data was retrieved from Radiology Information System and Inpatient Admission System with the support of HA Clinical Audit team and Statistic Team
- The time from A&E registration to CT brain study time (A&E to CT time) was calculated and was compared with other acute hospitals as benchmarking
- Total number of urgent CT brain requested from Medical & A&E Department was also monitored

Distribution of Stroke Caseload

Total 13,051 cases in HA

No. of Stroke Patients

2000
1800
1600
1400
1200
1000
800
600
400
200
0

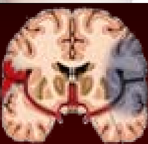
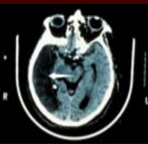
QEH A B C D E F G H I J K L M

Ischaemic Haemorrhagic

Results

- From 1/05 to 12/05, before the introduction of pre-admission CT brain services:
  - Total acute stroke/TIA patients: 1951
  - Median A&E to CT time: 4 hr 40 min
- From 7/06 to 6/07, 6 months after the pre-admission CT brain services:
  - Total acute stroke/TIA patients: 2026
  - Median A&E to CT time: 54 min

Results – 7/06 to 6/07

Results – 2005 Vs 2006

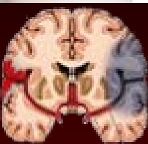
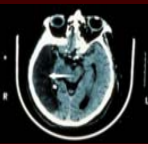
Results – 2005 Vs 2006

Total number of urgent CT brain requested from Medical and A&E Department was not increased. (Before 790/month vs After 802/month, p=0.8)

	2005			2006		
	MED	AED	Total	MED	AED	Total
Jan	813	81	894	677	203	880
Feb	742	82	824	627	264	891
Mar	846	81	927	731	287	1018
Apr	781	64	845	629	196	825
May	732	78	810	621	185	806
Jun	604	97	701	562	213	775
Jul	618	84	702	512	228	740
Aug	666	88	754	525	255	780
Sep	605	95	700	452	239	691
Oct	614	89	703	513	239	752
Nov	641	88	729	455	263	718
Dec	810	84	894	600	284	884

Discussion

- The significant improvement in the median A&E to CT time in QEH was due to the arrangement and performance of CT brain immediately after A&E assessment.
- Pre-admission CT services was the key to the short median A&E to CT time among acute HA hospitals:
  - With pre-admission CT services: 43min to 1hr 35min
  - Without the services: 1hr 06min to 13 hr 05min
- For the two hospitals with long median A&E to CT time of 10hr /13hr, 24-hour CT scan brain services were not available

Pre-admission CT: key to performance

Median A&E to CT Time

Preadmission CT available

24-hr CT not available

Median (hr)

HA's median (hr) = 2.32

Hours

14:24
12:00
9:36
7:12
4:48
2:24
0:00

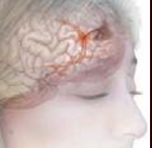
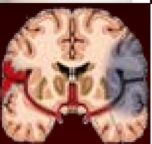
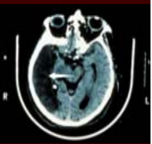
3:09
1:06
5:07
0:54
0:43
9:52
1:50
13:05
3:57
1:35
3:33
0:43
1:34
1:34

Conclusion

- With the streamlining of the logistics, most of acute stroke patients could have early CT brain performed before ward admission
- The median A&E to CT time was significantly shorten (54 minutes) and was among the best within the HA acute hospitals (range: 43 minutes to 13 hours)
- The quality of stroke care would be improved – appropriate treatment can be initiated after the CT study
- There was no increase in the total number of urgent CT brain performed afterward

Recommendation

- With the success of the pre-admission CT brain services for acute stroke patients, such program should be established in other HA acute hospitals without such services
- Collaboration and discussion of the logistics between A&E Department, Radiology Department and Medical Department will be the first step for the successful development and implementation of such program

Thank You