高屏地區醫療院所周產期轉診現況

-高雄長庚婦產部經驗分享-

財團法人長庚紀念醫院高雄醫學中心

許德耀 醫師

The Causes of Maternal Mortality Rate

Table 1. **Proportion of maternal deaths ascribed to specific causes by various classification systems**

Condition	Principal cause given on death certificate ICD-9 (%)	WHO verbal autopsy flowchart (%)	Primary cause verbal autopsy module filter (%)	Minimum (sole verbal autopsy cause) (%)	Maximum (mentioned in verbal autopsy) (%)
	(*n* = 127)	(*n* = 138)	(*n* = 138)	(*n* = 144–145)[1]	(*n* = 129–145)[2]
Haemorrhage 1	34.6	10.8[4]	17.4	13.8 (47.6)[3]	51.9
Infection 3	6.3	NA	13.8	1.4 (4.8)	18.5
Long or obstructed labour	NA	NA	NA	1.4 (4.8)	9.7
Toxaemia	NA	NA	NA	4.8 (16.7)	17.8
Pregnancy-induced hypertension 2	29.1	NA	21.0	9.0 (31.0)	64.6
Abortion	3.9	1.4[5]	5.1	0.7 (2.4)	5.5
Other	26.0	NA	42.8	4.1 (14.3)	42.8

NA = not available.

Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

WHO report

嬰兒與孕產婦死亡數及死亡率

全國歷年新生兒、嬰兒及孕產婦死亡概況

年別	新生兒死亡				嬰兒死亡				孕產婦死亡	
	計	男	女	死亡率 (0/00)	計	男	女	死亡率 (0/00)	死亡數	死亡率 (0/0000)
民國75年	642	355	287	2.1	1,938	1,050	888	6.3	29	9.4
民國76年	545	306	239	1.7	1,590	895	695	5.1	28	8.9
民國77年	611	338	273	1.8	1,820	997	823	5.3	31	9.0
民國78年	611	334	277	1.9	1,797	959	838	5.7	40	12.7
民國79年	605	319	286	1.8	1,765	965	800	5.2	40	11.9
民國80年	520	295	225	1.6	1,621	880	741	5.1	25	7.8
民國81年	589	355	234	1.8	1,664	972	692	5.2	22	6.8
民國82年	551	322	229	1.7	1,560	877	683	4.8	29	8.9
民國83年 (2)	693	395	298	2.1	1,636	940	696	5.1	26	8.0
民國98年	452	233	219	2.4	778	417	361	4.0	16	8.3
民國99年	429	246	183	2.6	705	403	302	4.2	7	4.2
民國100年	530	293	237	2.7	832	452	380	4.2	10	5.0
民國101年	538	312	226	2.3	860	485	375	3.7	20	8.5
民國102年	459	252	207	2.4	767	426	341	3.9	18	9.2
民國103年	458	258	200	2.2	761	446	315	3.6	14	6.6
民國104年 (4)	539	291	248	2.5	881	490	391	4.1	25	11.7
民國105年	505	289	216	2.4	811	439	372	3.9	24	11.6
民國106年	486	267	219	2.5	772	412	360	4.0	19	9.8
民國107年	474	257	217	2.6	752	416	336	4.2	22	12.2

附註：(1) 孕產婦死亡率＝(孕產婦死亡數/活產嬰兒數)×100,000。

(2) 本表資料自民國83年起含金門縣及連江縣。

(3) 本表資料自民國97年起死因分類為ICD-10。

(4) 本表資料自民國104年起運用死亡證明書「懷孕情形」欄位勾稽歸類孕產婦死亡統計。

新生兒：出生至第一個月

嬰兒：出生第一個月至一歲

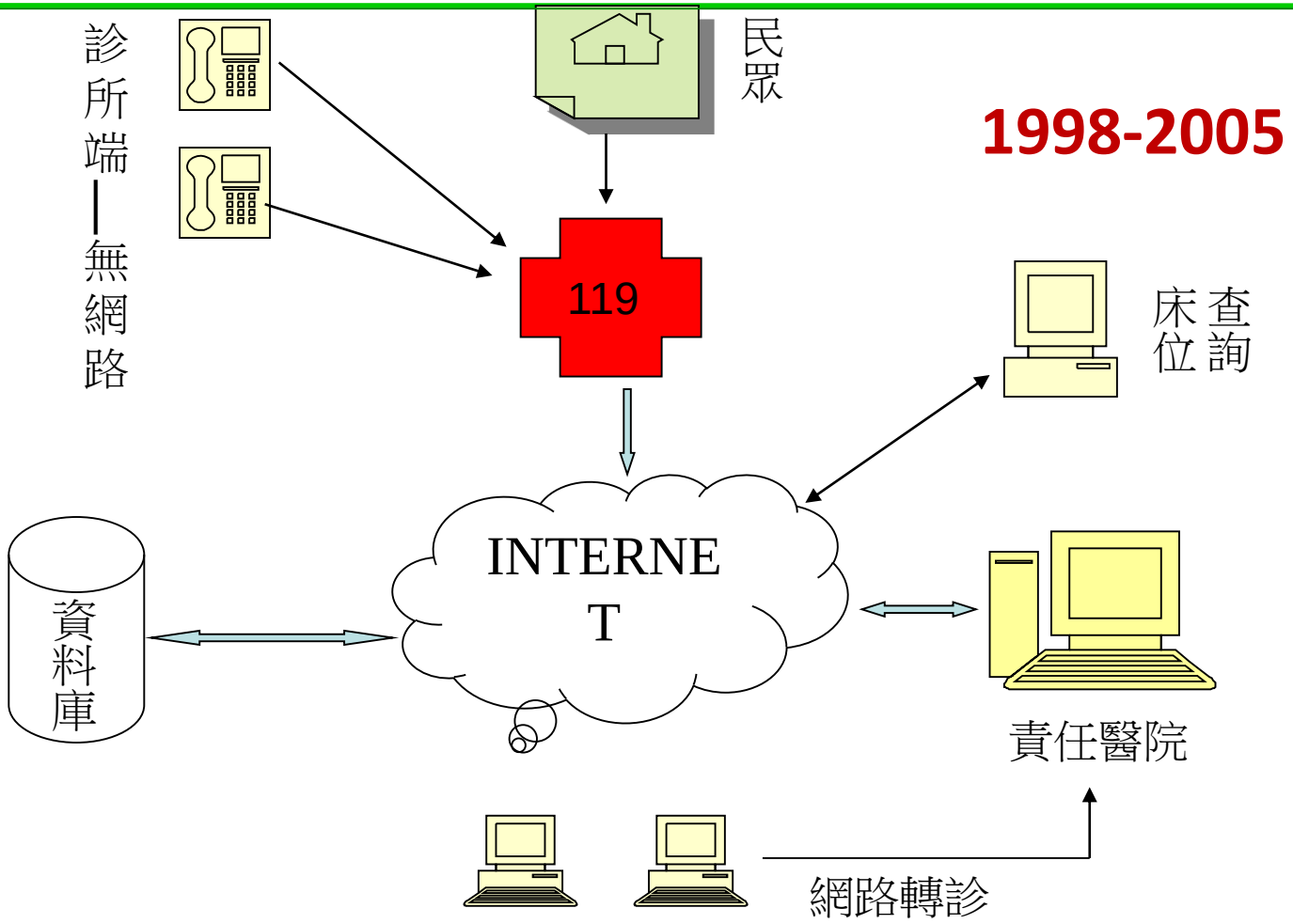
近年嬰兒、孕產婦死亡率

年度	嬰兒死亡率（每千活產）	孕產婦死亡率（每十萬活產）
2018	4.2	12.2
2017	4.0	9.8
2016	3.9	11.6
2015	4.1	11.7
2014	3.6	6.6
2013	3.9	9.2
2012	3.7	8.5
2011	4.2	5.0
2010	4.2	4.2
2009	4.0	8.3

資料來源：衛福部　製表：記者吳亮儀

Maternal Transport

周產期緊急醫療網轉診系統結合119勤務中心示意圖



Maternal Transport

Perinatal mortality and morbidity

Comparison between maternal transport(ATI), neonatal transport(PTI)and inpatient antenatal treatment(NTI)

Table 1 Overall data: Study population, obstetrical and neonatal data. Values are given as mean (±SD) and range or percent (n)

	ATI (n=247)	NTI (n=120)	PTI (n=34)
Maternal age [years]	28.1 (±5.3)	29.2 (±5.7)	27.9 (±6.0)
Parity	1.8 (±1.0)	2.0 (±0.9)	1.7 (±1.1)
Gestational age at transfer [weeks]	28.5 (±4.5) (24–41)	29.7 (±5.1) (24–39)	/
Gestational age at birth [weeks]	30.6 (±5.3) (24–42)	35.3 (±4.6) (24–41)	32.2 (±2.98) (25–36)
Birth weight [g]	1502 (±929) (322–3890)	2567 (±917.4) (548–4240)	1853 (±632.4) (884–2994)
Caesarean section	74.5 (184)	50.8 (61)	81.8 (27)
Indication of transfer			
PROM	28.3 (70)	12.5 (15)	32.4 (11)
Preterm labor	22.3 (55)	32.5 (39)	20.6 (7)
Preeclampsia	9.3 (23)	15.8 (19)	5.9 (2)
Other	40.1 (99)	39.2 (47)	41.1 (14)
Antenat. corticosteroids			
Not indicated*	20.3 (50)	72.3 (86)	24.0 (6)
Indicated**	79.7 (196)	27.7 (34)	76 (28)
Completed	64.3 (126)	66.7 (22)	68.4 (13)
Partial	31.6 (62)	18.2 (6)	5.3(1)
None	4.1 (8)	15.1 (5)	26.3 (5)

* Not considered necessary because of a gestational age >34 weeks

** ATI. n=246, NTI n=119, PTI n=25

Arch Gynecol Obstet (2001) 265:113–118

Maternal Transport

Table 5 Multivariate logistic model adjusting for gestational age and lung maturation with respect to the risk of death and the risk of severe neonatal morbidity

	Odds ratio	Confidenz interval		*p*-value
		lower 95% CL	upper 95% CL	
Outcome death				
ATI vs PTI*	1.787	0.079	40.22	0.8237
NTI vs PTI*	2.404	0.088	65.29	
Gestational age [w]	0.701	0.571	0.86	0.0006
Antenatal corticosteroids 1 vs 0*	3.520	1.395	8.88	0.0076
Outcome severe neonatal morbidity				
ATI vs PTI*	0.19	0.04	0.96	0.0650
NTI vs PTI*	0.06	0.0004	0.75	
Gestational age [w]	0.73	0.56	0.90	0.0022
Antenatal corticosteroids 1 vs 0*	1.67	0.54	4.91	0.3590

* *0* completed lung maturation or not required, *1* partial or no lung maturation

Antenatal transfer guaranteed a significantly better neonatal outcome concerning severe neonatal morbidity than postnatal transport, and compared favorably with inborn admissions, even given the higher gestational age and birth weight in the NTI-group.

Arch Gynecol Obstet (2001) 265:113–118

緣起

Since 2004


婦人兩度墮胎後懷孕 初期出血僅作安胎 28週時腹部絞痛休克

胎盤穿透子宮 母子險送命

臨床遺傳學及產後大出血研討會
Advances in clinical genetics and threatening postpartum hemorrhage

時間：95 年 7 月 23 日 （星期日）
地點：高雄長庚紀念醫院 兒童大樓 6 樓會議廳紅廳

08:15 – 08:30	報到	
08:30 – 08:40	Opening address	徐振傑理事長 醫務副部主任
	Moderators: 徐振傑理事長 郭保麟部主任	
08:40 – 09:05	Detection of uniparental disomy for Rebertsonian translocation carriers in Taiwan	郭保麟部主任
09:05 – 09:30	分子生物學在遺傳基因疾病之臨床運用	李建南主任
09:30 – 09:55	生物科技產業的發展與技術介紹	蔡政憲博士
09:55- 10:25	遺傳診斷之過去，現在與未來展望	蘇柏宇醫師
10:25- 10:40	Coffee break	
	Moderators: 許世正主任 歐家佑主任	
10:40 – 11:05	Management of life threatening postpartum hemorrhage: indications and technique of arterial embolization	曾惠節醫師
11:05 – 11:30	The conservative and operative strategies in the management of placenta increta, percreta	許德耀副部長
	Moderators: 黃國峰部主任 鄭永治主任	
11:30 – 12:00	Temporary balloon occlusion of the common iliac artery: new approach to bleeding control during cesarean hysterectomy for placenta percreta.	施景中醫師
12:00 – 12:30	Placenta previa accrete: comparison of MR imaging and 3D US for diagnosis and surgical correlation	周明明主任

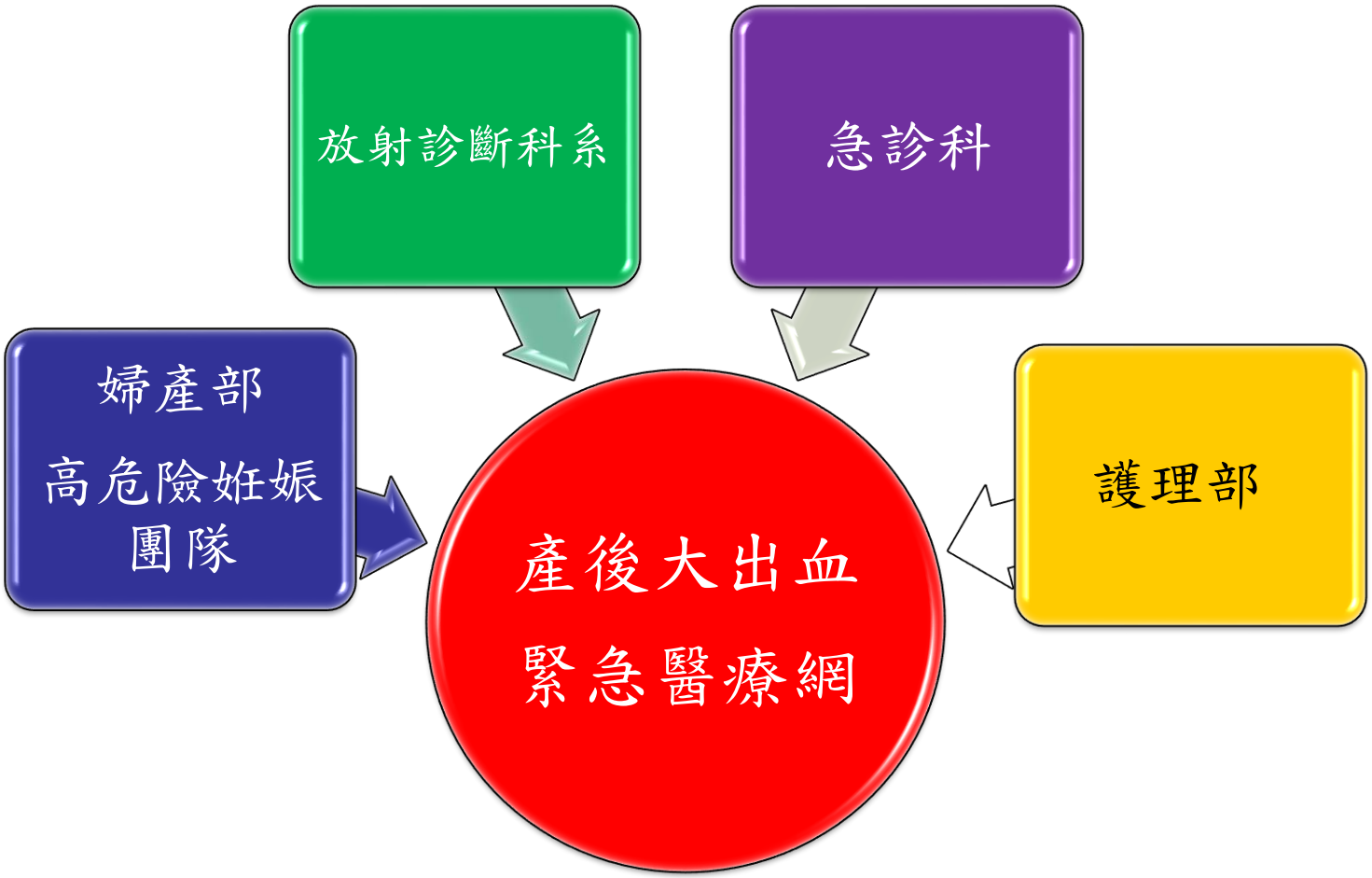
主辦單位：高雄長庚紀念醫院婦產部
合辦單位：中華民國周產期醫學會
協辦單位：凱聯生技公司

成　立

搶救產後大出血

高雄長庚醫療團隊

跨科成員



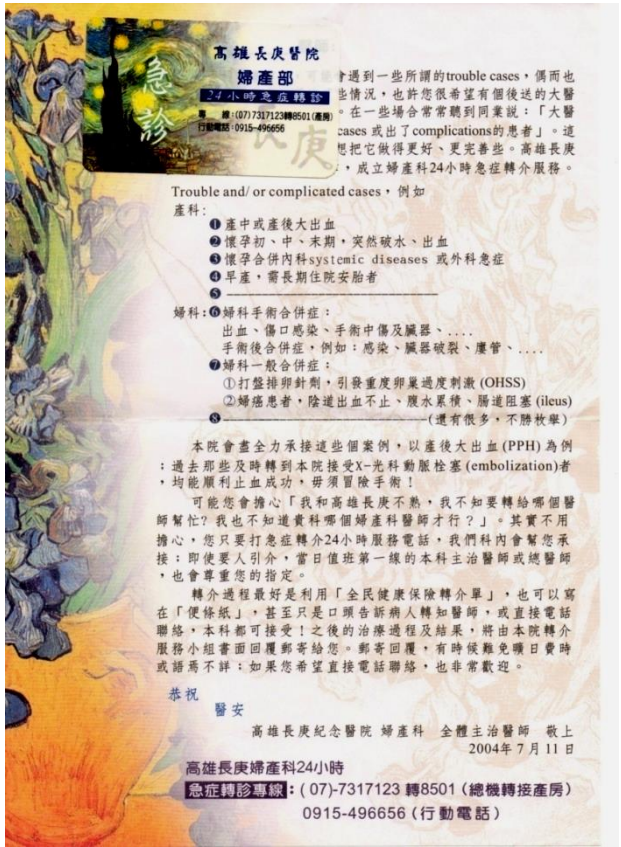
服務定位

1. 24小時全天候待命、跨科部醫療團隊，搶救產後大出血病患。
2. 醫師對醫師之熱線轉介。

團隊沿革

草創期 → 團隊組織化 → 成熟期

1991　　2004　　2009



高雄長庚醫院
婦產部
24小時急症轉診
電　線：(07)7317123轉8501(產房)
行動電話：0915-496656

急診

…遇到一些所謂的trouble cases，偶而也…生情況，也許您很希望有個後送的大醫…。在一些場合常常聽到同業說：「大醫…cases 或出了complications的患者」。這…想把它做得更好、更完善些。高雄長庚…，成立婦產科24小時急症轉介服務。

Trouble and/ or complicated cases，例如
產科：
❶產中或產後大出血
❷懷孕初、中、末期，突然破水、出血
❸懷孕合併內科systemic diseases 或外科急症
❹早產，需長期住院安胎者
❺_____
婦科：❻婦科手術合併症：
出血、傷口感染、手術中傷及臟器、....
手術後合併症，例如：感染、臟器破裂、塵管、....
❼婦科一般合併症：
①打盤排卵針劑，引發重度卵巢過度刺激 (OHSS)
②婦癌患者，陰道出血不止、腹水累積、腸道阻塞 (ileus)
❽_____(還有很多，不勝枚舉)

本院會盡全力承接這些個案例，以產後大出血 (PPH) 為例：過去那些及時轉到本院接受X-光科動脈栓塞 (embolization)者，均能順利止血成功，毋須冒險手術！

可能您會擔心「我和高雄長庚不熟，我不知要轉給哪個醫師幫忙？我也不知道貴科哪個婦產科醫師才行？」。其實不用擔心，您只要打急症轉介24小時服務電話，我們科內會幫您承接；即使要人引介，當日值班第一線的本科主治醫師或總醫師，也會尊重您的指定。

轉介過程最好是利用「全民健康保險轉介單」，也可以寫在「便條紙」，甚至只是口頭告訴病人轉知醫師，或直接電話聯絡，本科都可接受！之後的治療過程及結果，將由本院轉介服務小組書面回覆郵寄給您。郵寄回覆，有時候難免曠日費時或語焉不詳；如果您希望直接電話聯絡，也非常歡迎。

恭祝
醫安

高雄長庚紀念醫院 婦產科　全體主治醫師　敬上
2004年7月11日

高雄長庚婦產科24小時
急症轉診專線：(07)-7317123 轉8501（總機轉接產房）
0915-496656（行動電話）

24小時急症轉診
（產科、婦科緊急case）

高雄長庚醫院婦產部

1. 專線電話：(07)7317123
轉 分 機：8501,8502
（產房，找值班CR或VS）
2. 逕洽VS

醫療團隊主治醫師：

龔福財　張簡展照
許德耀　馬彥英
黃富仁　蔡景州
歐家佑　傅宏鈞
黃寬慧　蔡慶璋
林　浩　莊斐琪
藍國忠　吳貞璇
歐育哲　林秉瑤
鄭碧華

2004-2014

Figure 1. Comparison of delivery methods of PPH, all p<0.05

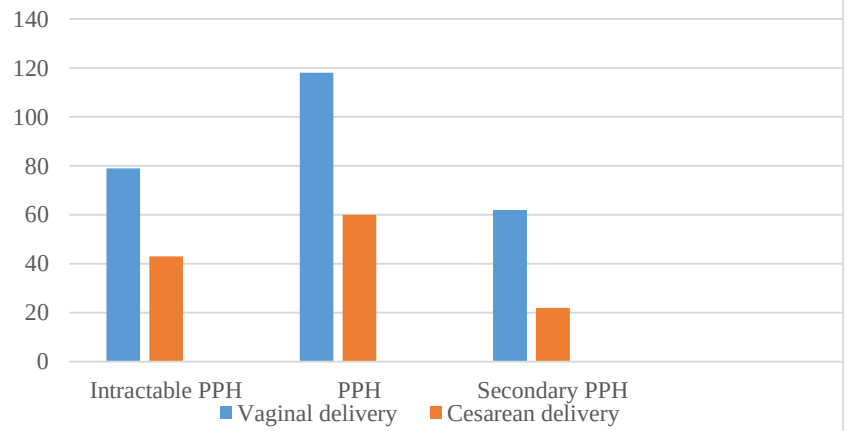
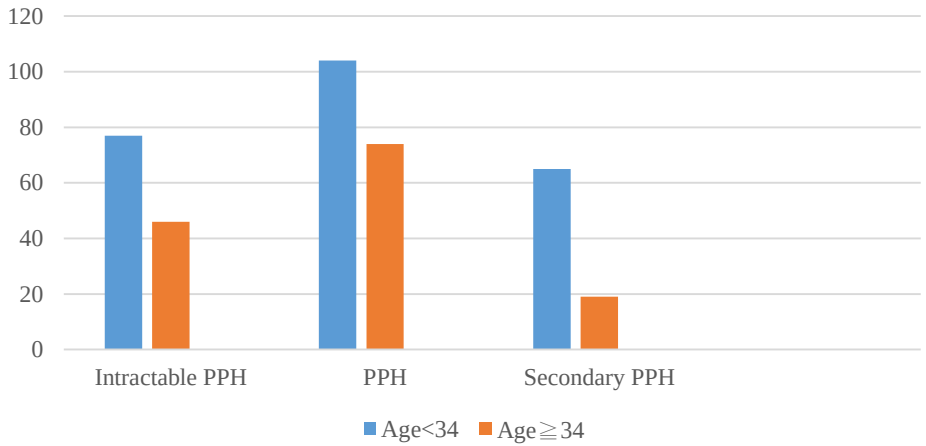
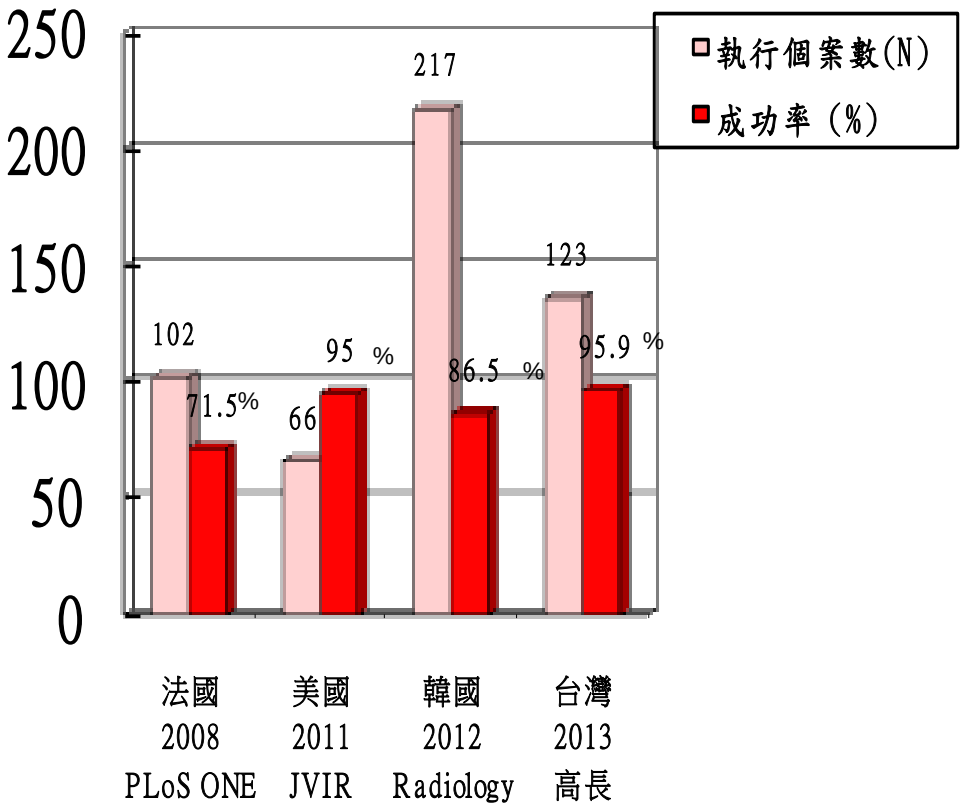


Figure 2. Comparison of age of PPH, all p<0.05



產後大出血、血管栓塞術治療
成功率95.9%



2011國家品質標章證書

CERTIFICATE OF 2011 SYMBOL OF NATIONAL QUALITY

長庚醫療財團法人高雄長庚紀念醫院

產後大出血的守護神

參加2011國家品質標章 醫療院所類/醫院特色專科組 評鑑活動，

經大會評審委員會評選，獲得國家品質標章，特此證明。

有效期限：民國101年12月31日止

This is to certify that **Ultimate Protection Against Massive Postpartum Hemorrhage** of **Kaohsiung Chang Gung Memorial Hospital** is awarded The Symbol of National Quality in the **Featured Specialty Section, Hospital Category** by Institute for Biotechnology and Medicine Industry.

Date of Validity: Until Dec. 31st, 2012

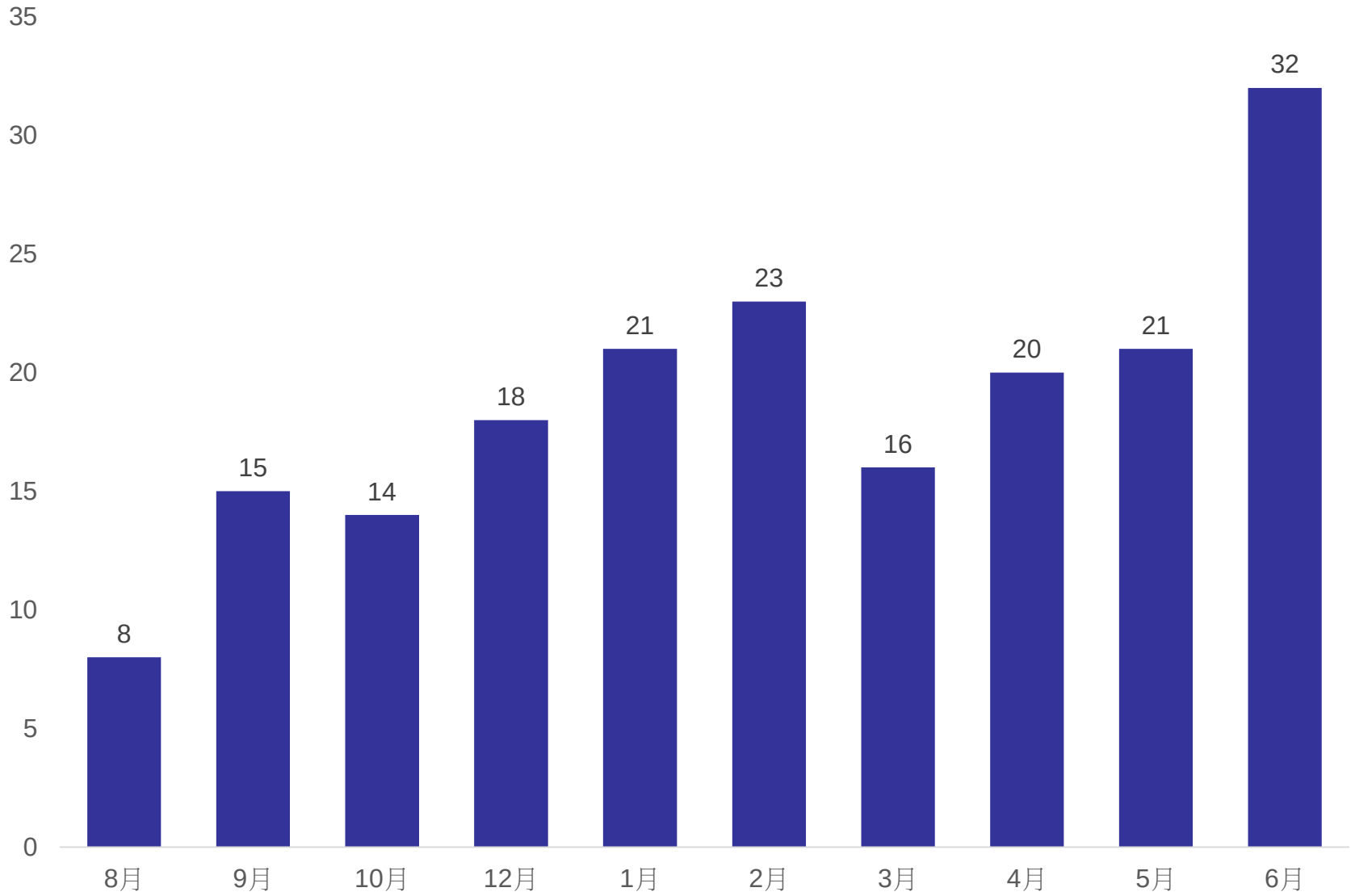
WHO:PPH Treatment

Box B: Recommendations for the treatment of PPH

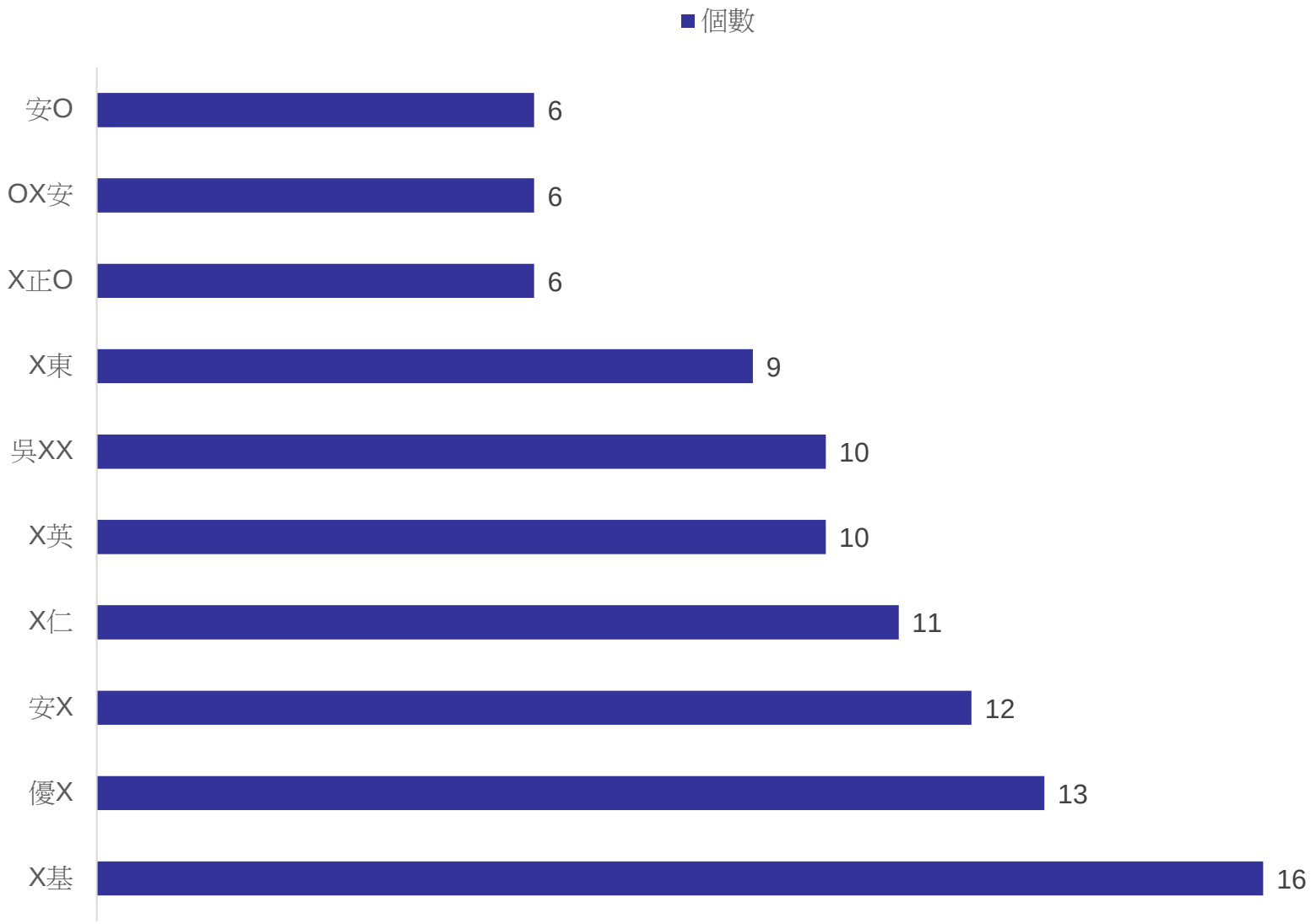
13. Intravenous oxytocin alone is the recommended uterotonic drug for the treatment of PPH. (Strong recommendation, moderate-quality evidence)
14. If intravenous oxytocin is unavailable, or if the bleeding does not respond to oxytocin, the use of intravenous ergometrine, oxytocin-ergometrine fixed dose, or a prostaglandin drug (including sublingual misoprostol, 800 µg) is recommended. (Strong recommendation, low-quality evidence)
15. The use of isotonic crystalloids is recommended in preference to the use of colloids for the initial intravenous fluid resuscitation of women with PPH. (Strong recommendation, low-quality evidence)
16. The use of tranexamic acid is recommended for the treatment of PPH if oxytocin and other uterotonics fail to stop bleeding or if it is thought that the bleeding may be partly due to trauma. (Weak recommendation, moderate-quality evidence)
17. Uterine massage is recommended for the treatment of PPH. (Strong recommendation, very-low-quality evidence)
18. If women do not respond to treatment using uterotonics, or if uterotonics are unavailable, the use of intrauterine balloon tamponade is recommended for the treatment of PPH due to uterine atony. (Weak recommendation, very-low-quality evidence)
19. If other measures have failed and if the necessary resources are available, the use of uterine artery embolization is recommended as a treatment for PPH due to uterine atony. (Weak recommendation, very-low-quality evidence)
20. If bleeding does not stop in spite of treatment using uterotonics and other available conservative interventions (e.g. uterine massage, balloon tamponade), the use of surgical interventions is recommended. (Strong recommendation, very-low-quality evidence)
21. The use of bimanual uterine compression is recommended as a temporizing measure until appropriate care is available for the treatment of PPH due to uterine atony after vaginal delivery. (Weak recommendation, very-low-quality evidence)
22. The use of external aortic compression for the treatment of PPH due to uterine atony after vaginal birth is recommended as a temporizing measure until appropriate care is available. (Weak recommendation, very-low-quality evidence)
23. The use of non-pneumatic anti-shock garments is recommended as a temporizing measure until appropriate care is available. (Weak recommendation, low-quality evidence)
24. The use of uterine packing is not recommended for the treatment of PPH due to uterine atony after vaginal birth. (Weak recommendation, very-low-quality evidence)
25. If the placenta is not expelled spontaneously, the use of IV/IM oxytocin (10 IU) in combination with controlled cord traction is recommended. (Weak recommendation, very-low-quality evidence)
26. The use of ergometrine for the management of retained placenta is not recommended as this may cause tetanic uterine contractions which may delay the expulsion of the placenta. (Weak recommendation, very-low-quality evidence)
27. The use of prostaglandin E2 alpha (dinoprostone or sulprostone) for the management of retained placenta is not recommended. (Weak recommendation, very-low-quality evidence)
28. A single dose of antibiotics (ampicillin or first-generation cephalosporin) is recommended if manual removal of the placenta is practised. (Weak recommendation, very-low-quality evidence)

高雄長庚急診轉介現況

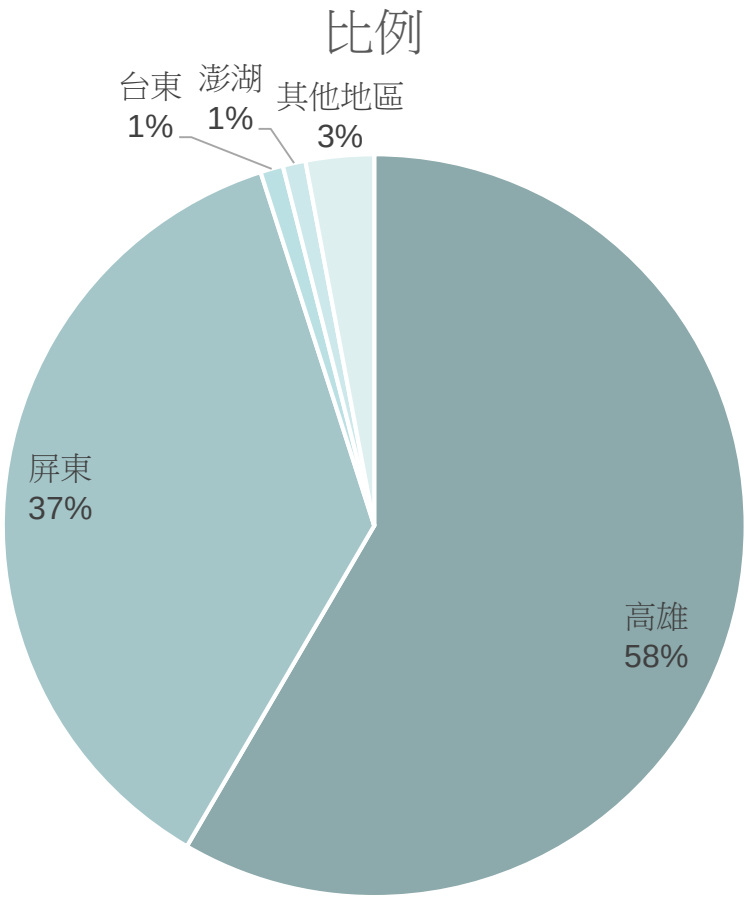
急診婦產科轉介數量（2019/08~2020/06）



轉診醫院(前十名)



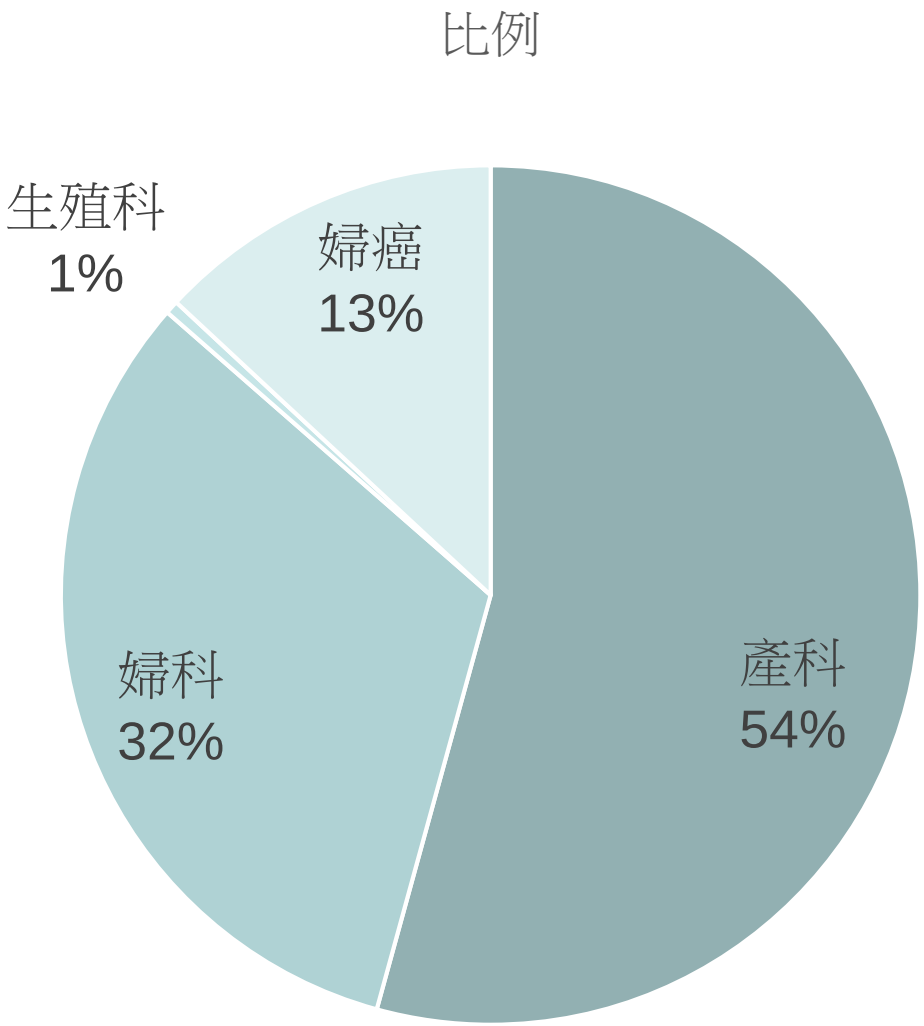
轉診地區



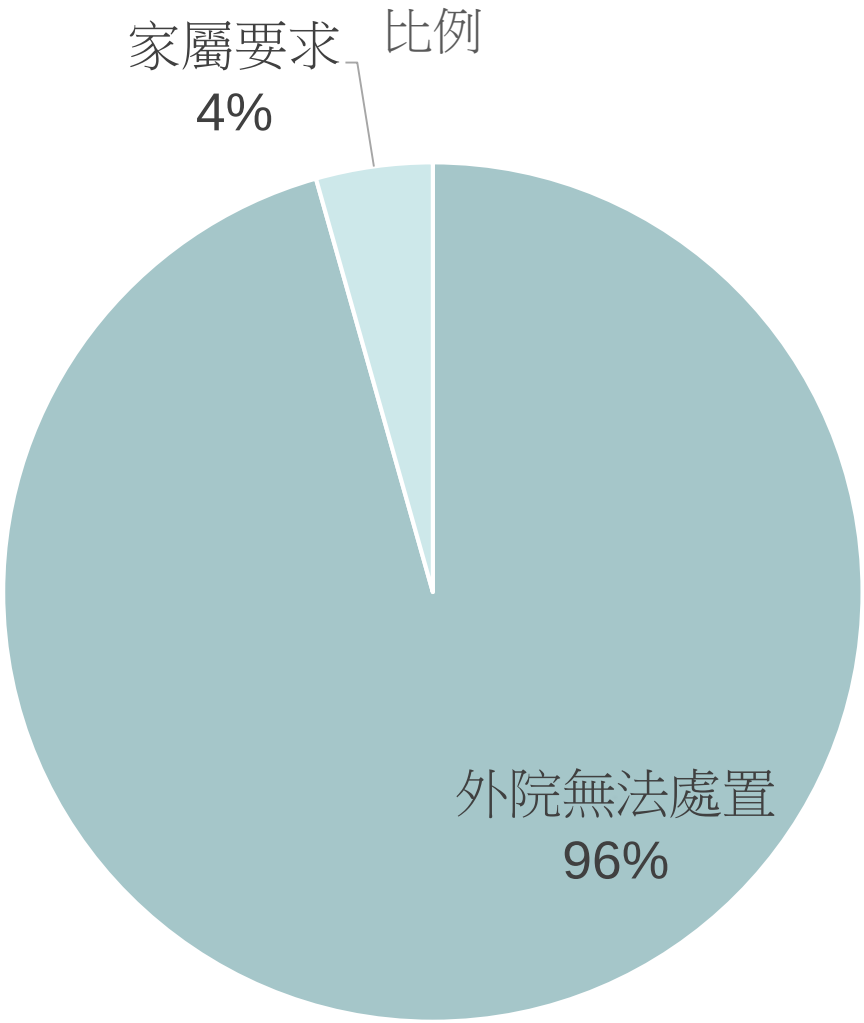
個案來源分析

島內最長距離：95.8公里　最短距離：4.1公里　平均距離與車程：27公里；34分

次專科比例

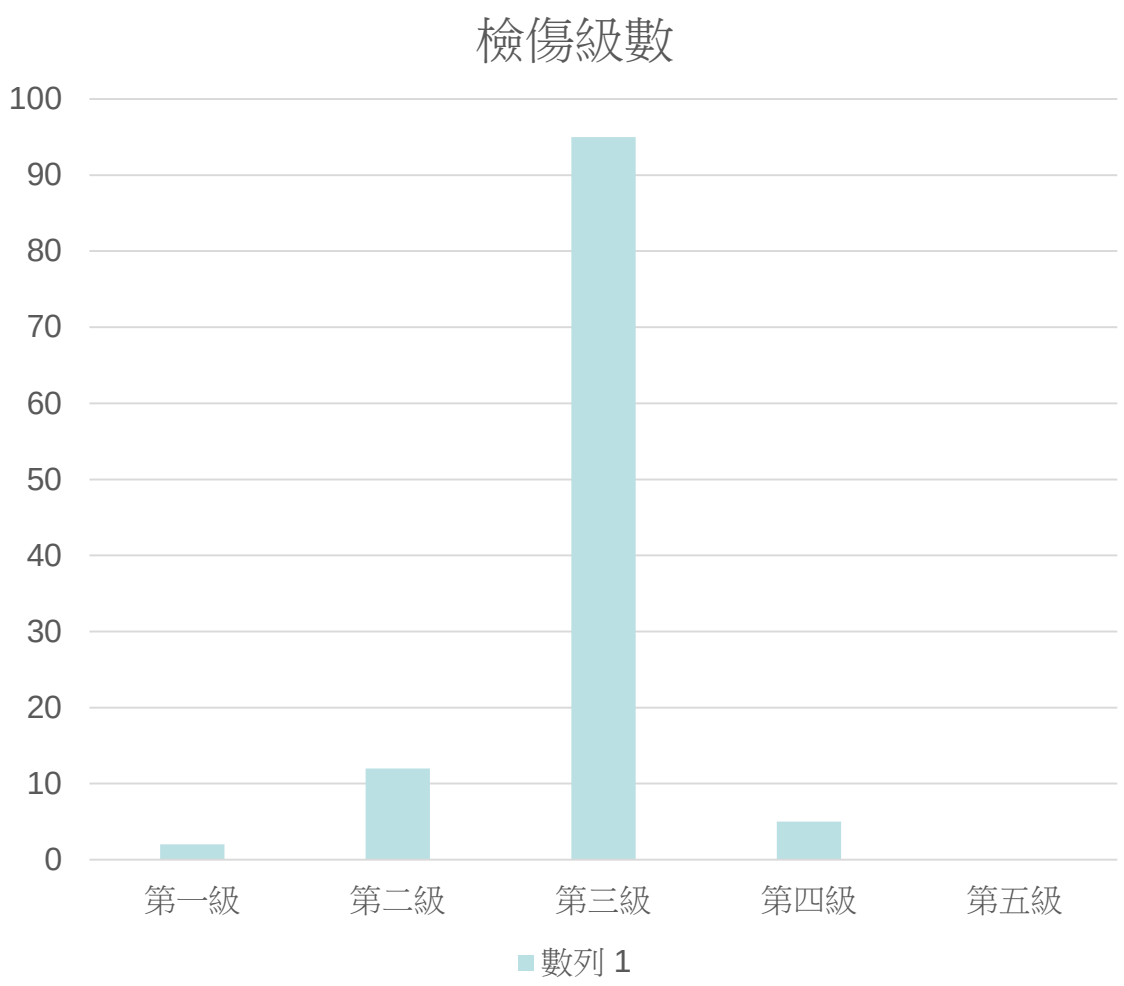


轉入原因

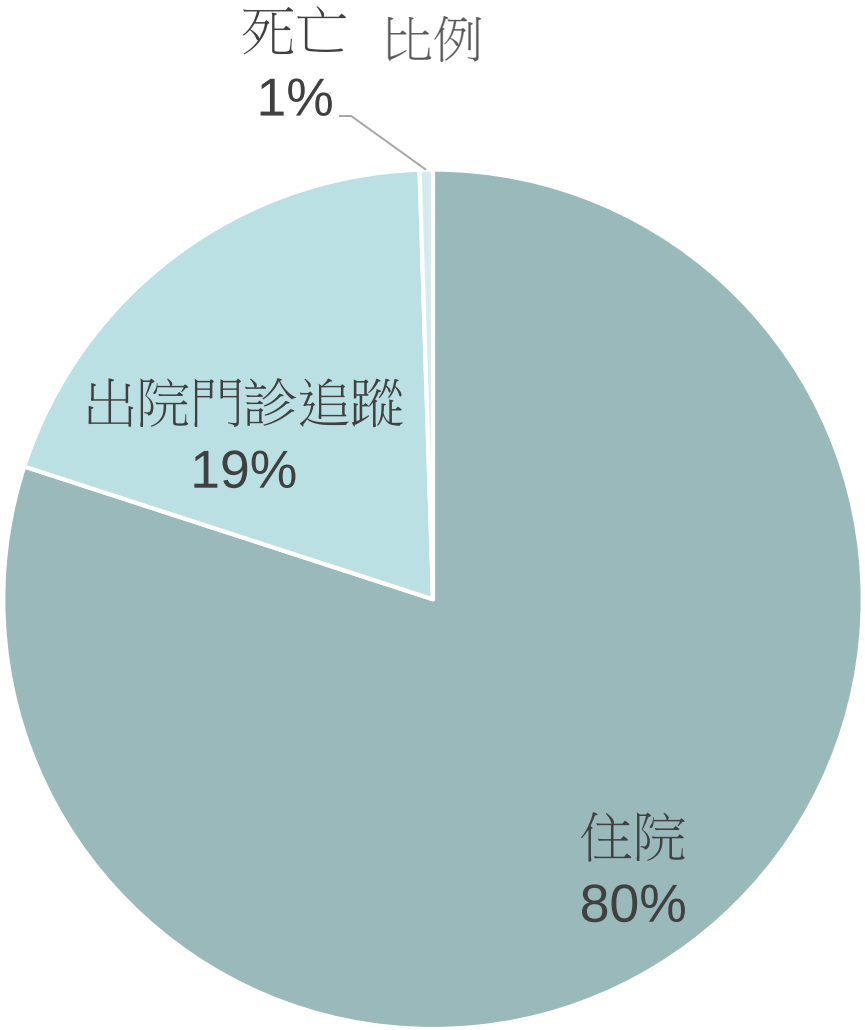


檢傷級數

- 第一級(復甦急救)
- 第二級(危急)
- 第三級(緊急)
- 第四級(次緊急)
- 第五級(非緊急)



處置



治療成功案例分享

- 26 y/o female
- BW:74.5 kg , H:162 cm , BMI:28.3
- Underlying Disease: denied
- OB/GYN Hx: G5P2(P1:NSD)A3
- Prenatal care at LMD: WNL

At LMD

- Admitted to LMD for induction
  - Induction by Propess, GA 40 weeks
  - Vaginal delivery without instrument assisted on 2020/04/30
  - Fetal weight: 3500gm
  - Blood loss 650 ml
- 30 minutes after vaginal delivery -> sudden dyspnea, consciousness change and then cardiac arrest-> CPCR, ever ROSC once with HR 150-170 bpm

Transferred to ER

- Cardiac arrest on the arrival
  - EKG : PEA
  - CPCR 5mins -> ROSC, but still tachycardia
    - BP: 108/91 mmHg, HR 130 bpm, RR 16
- PE: bil. Pupil dilated, soft abdomen, little urine , no gross hematuria, vaginal gauzes for compression
- Bedside echo (CVS):presented with D-shape(increased RV pressures)
- Bedside ultrasound (GYN): morrison pouch/cul-de sac: no fluid accumulation ; blood clot accumulation over low segment, otherwise, no obvious retained gestational tissue seen

Lab data

WBC	34300/uL	BUN	13 mg/dL
Hb	6.0 g/dL	Cr	1.07 mg/dL
PLT	140000/dL	Total bil	0.6 mg/dL
FDP	>80ug/mL	GOT	132U/L
PT	18.3 sex	GPT	115 U/L
INR	1.8	Ca	6.4 mg/dL
aPTT	>100 sec	Na	141mEq/L
Fibronogen	55.1 mg/dL	K	3.1mEq/L
D-Dimer	>35 mg/L	Albumin	1.8 g/dL

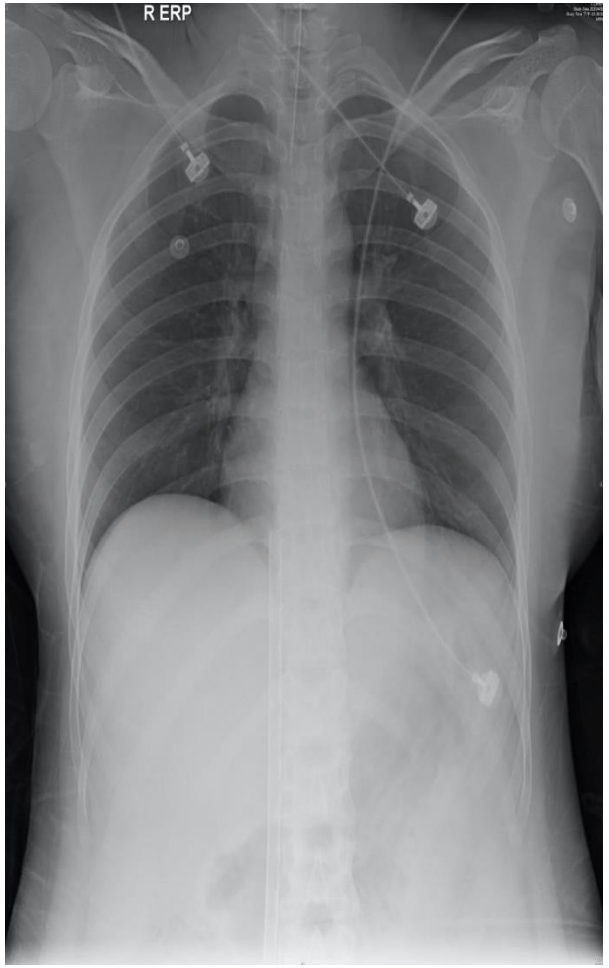
- Severe anemia
- Prominent coagulopathy

Plan at ER

- On V-A ECMO for highly suspect pulmonary embolism related cardiac arrest
- Promptly blood transfusion
- Chest X ray
- Brain CT
- CTA(CT angiography)

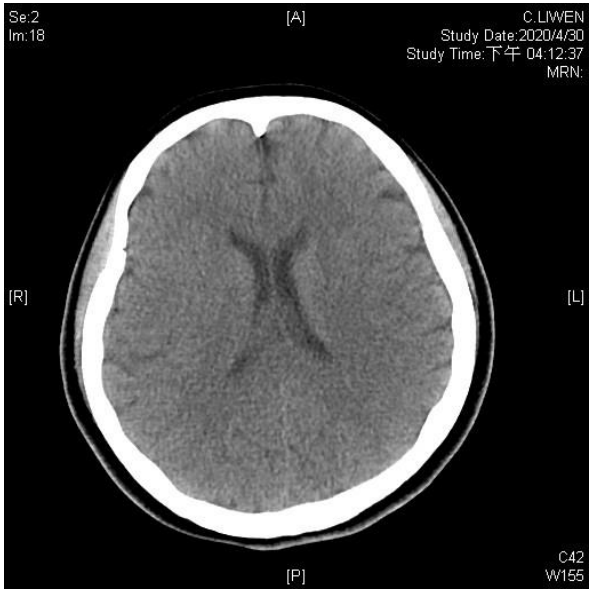
CXR

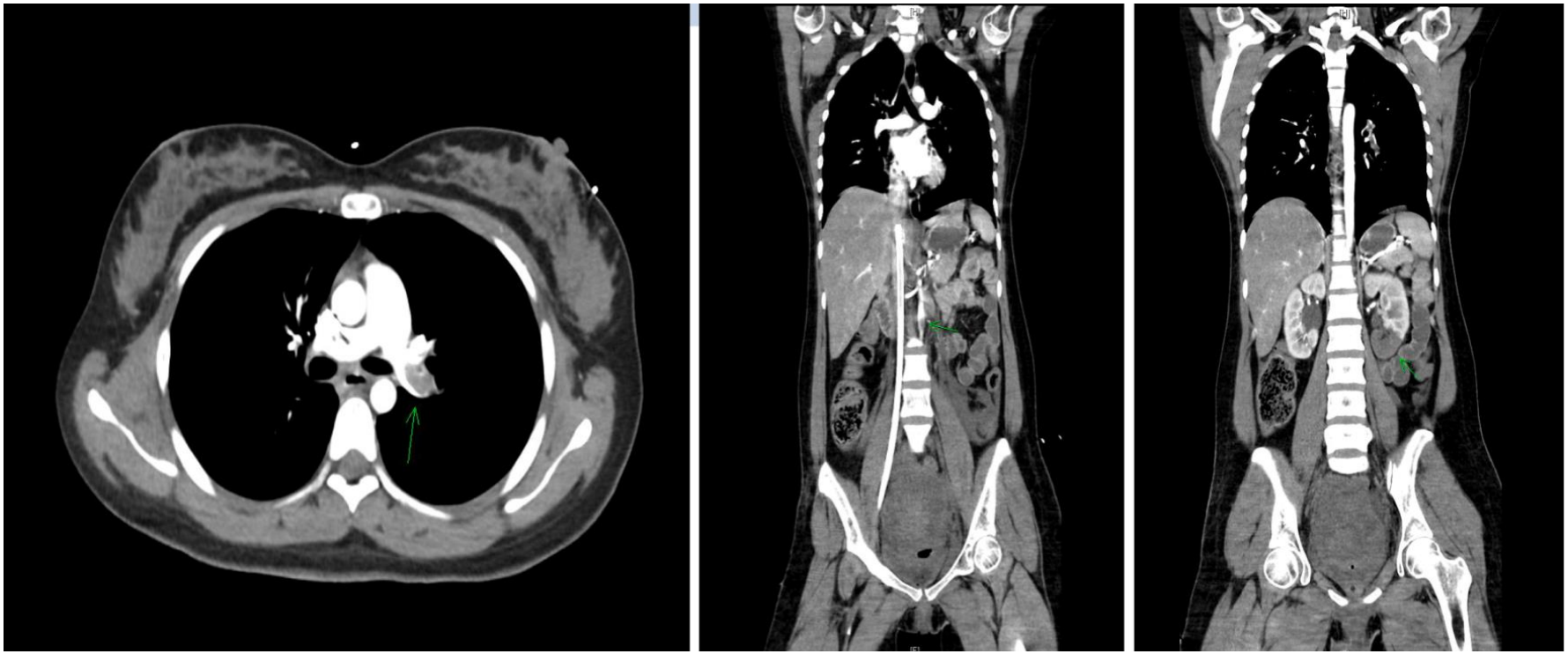
- No active lung lesions



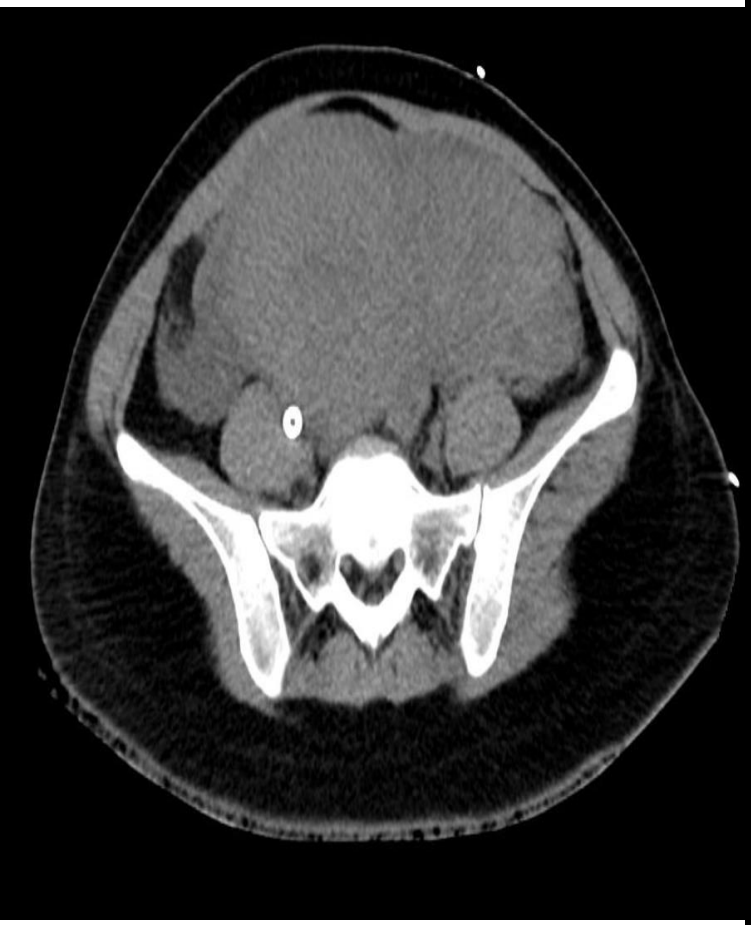
Brain CT

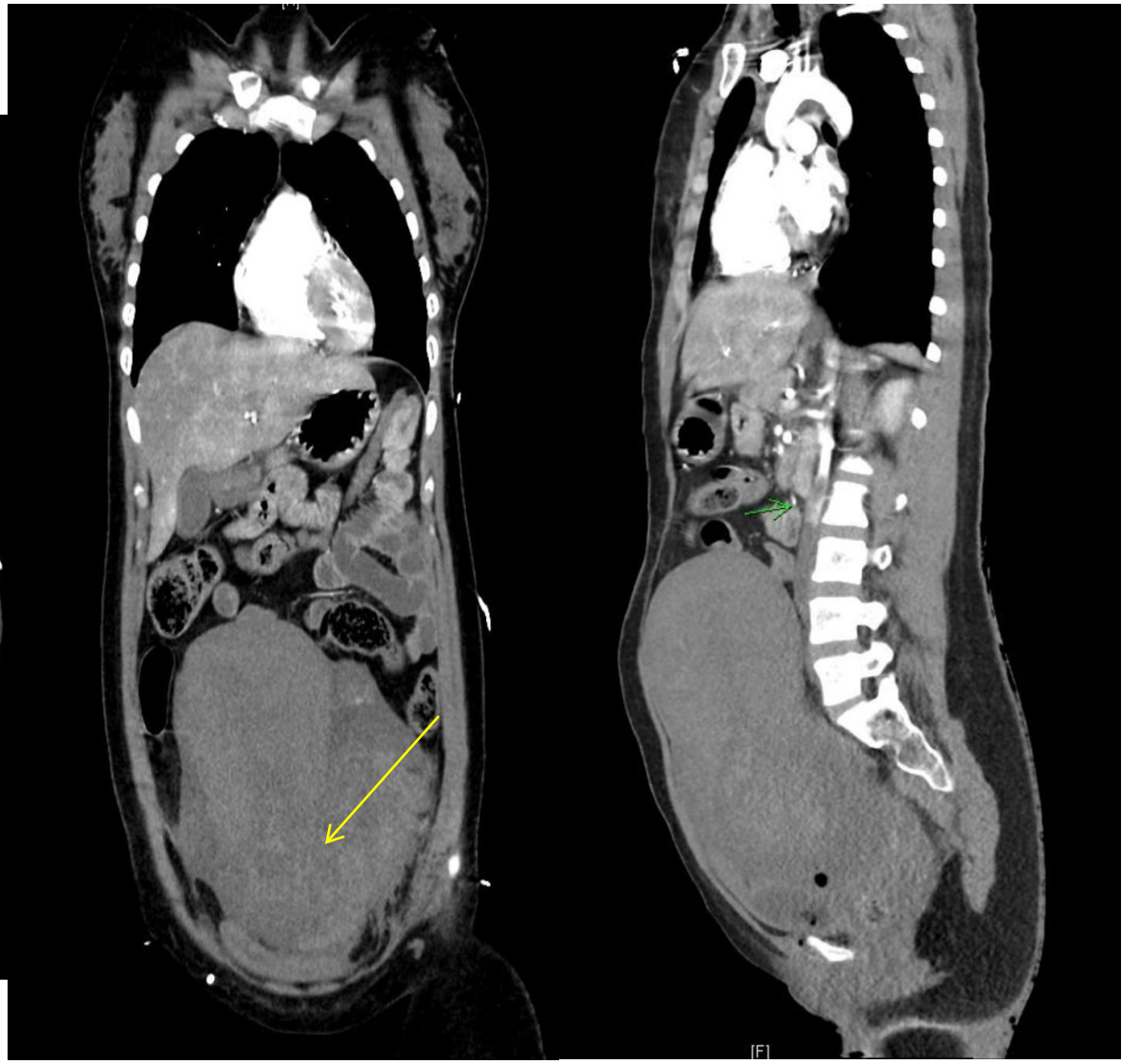
- No gross focal brain lesion
- No evidence of recent intracranial hemorrhage





Left inferior pulmonary artery,bil iliac arteries filling defect



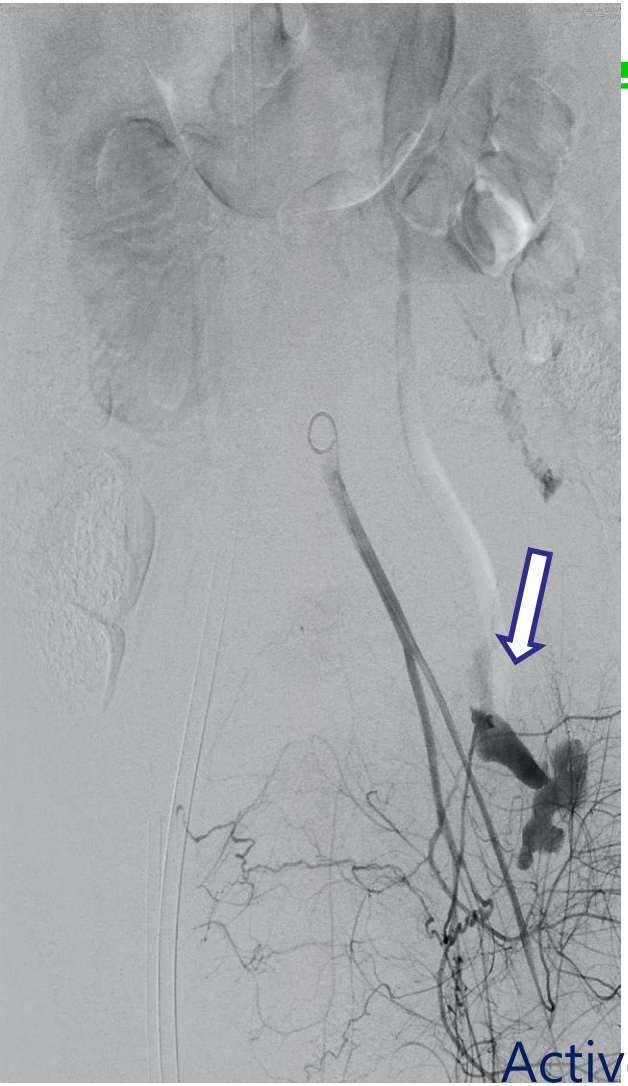


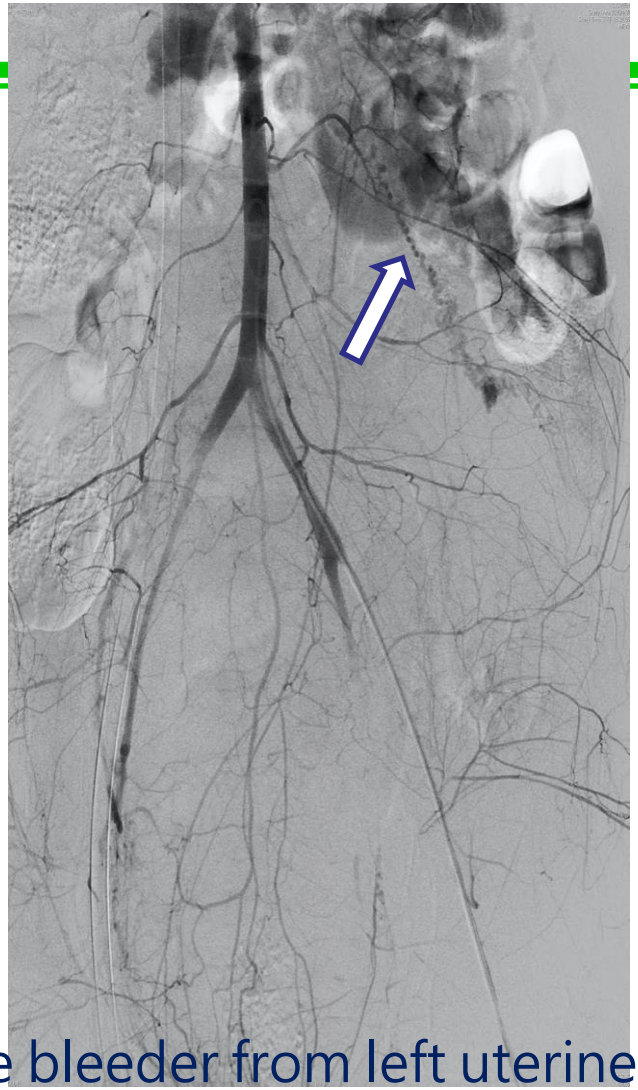
Tentative diagnosis

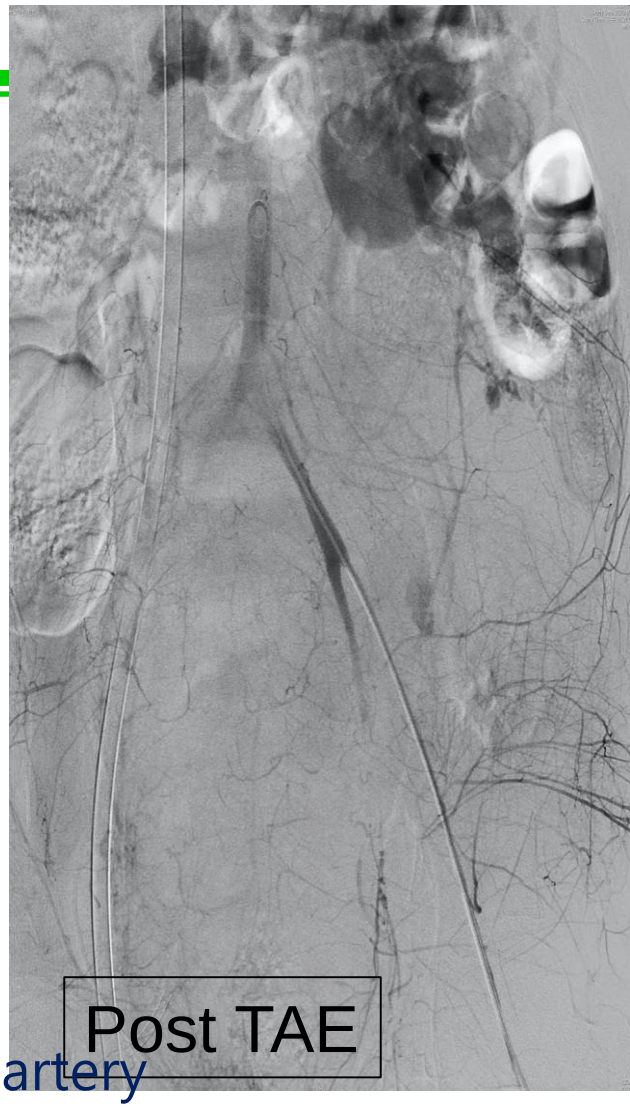
- Postpartum hemorrhage with hopovolemic shock, complicated with severe coagulopathy
- Pulmonary embolism
- Highly suspect uterine rupture

Vital signs(before TAE)	
BP	74/49m mHg
HR	162bpm
SpO2	87%

Arrange TAE







Active bleeder from left uterine artery
Left adnexal venous bleeding

Post TAE

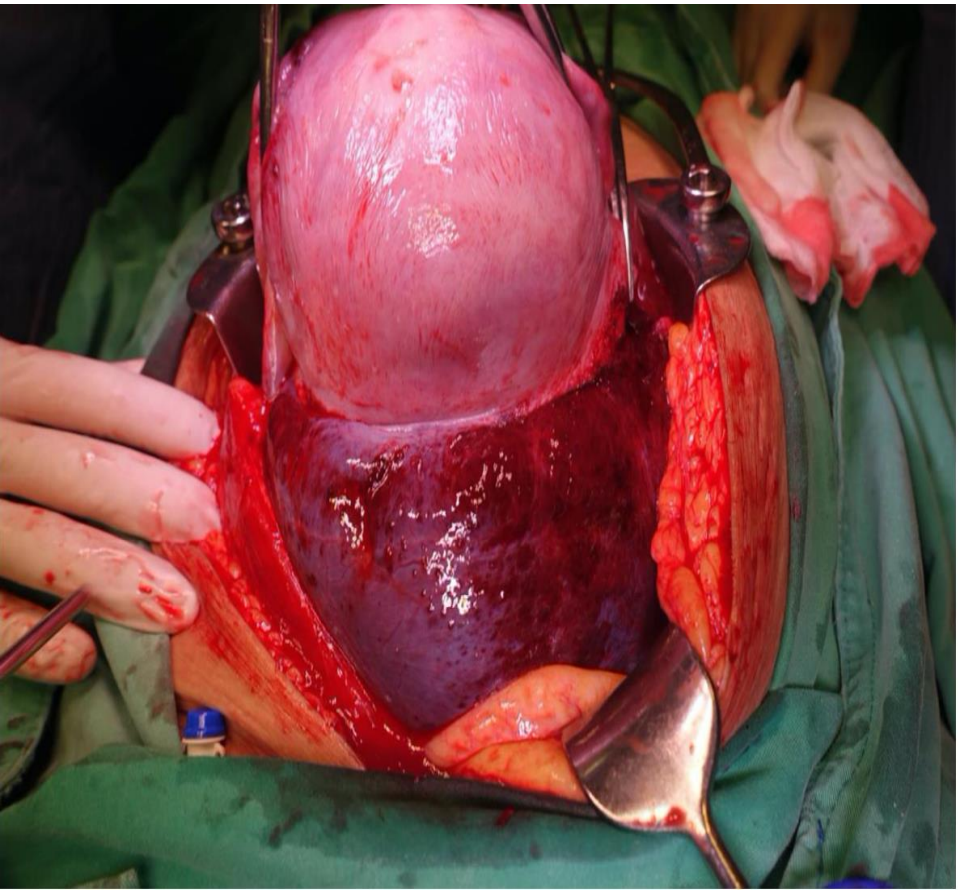
Admission to ICU

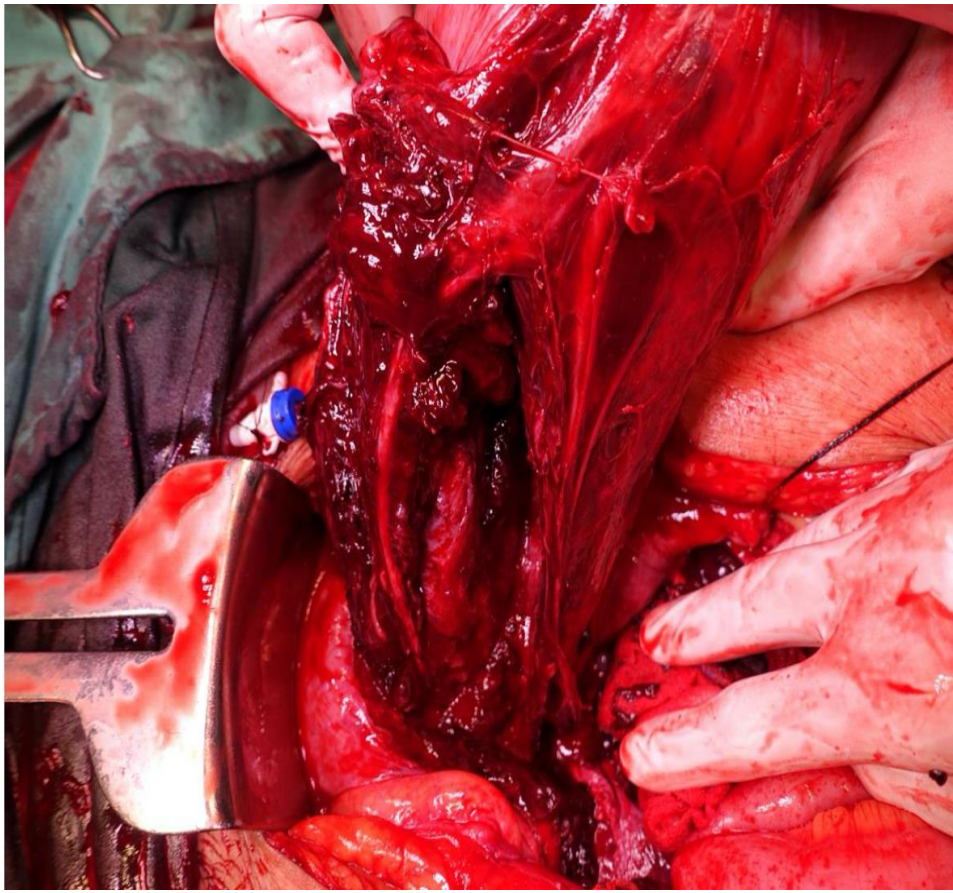
- Lab: partially corrected coagulopathy (APTT 48.9, PT INR 1.32, Fibrinogen 141), Hgb 8.9, PLT 70000
- PV: > 1600 ml vaginal bleeding within 1 hours(total vaginal bleeding: 3090ml)

Arrange operation: Postpartum hysterectomy

- Uterine size: 20x10cm in size
- Huge hematoma over low segment and extened to subserosal space, cervix laceration was noted from left side wall of cervix to low segment of uterus
- Vaginal cuff suture by open cuff method

Vital signs(post TAE)	
BP	119/65mm Hg
HR	131bpm





ICU clinical course

Date	
5/1	Lochia: 160ml, V/B 200ml, Urine: 1010ml/8hrs
5/2	Start heparinization in the morning , keep aPTT 50~70 sec for left pulmonary embolism V/B: 20ml, Urine: 570ml/8hr
5/3	Prominent tachycardia (HR 120 bpm => 160 bpm) and decreased urine output Hgb 7.6, V/B: 555 ml
5/4	V/B 860 ml, still tachycardia, Hgb 7.3 Angiography for suspect internal bleeding: No definite active contrast median extravasation noted

ICU clinical course

Date	

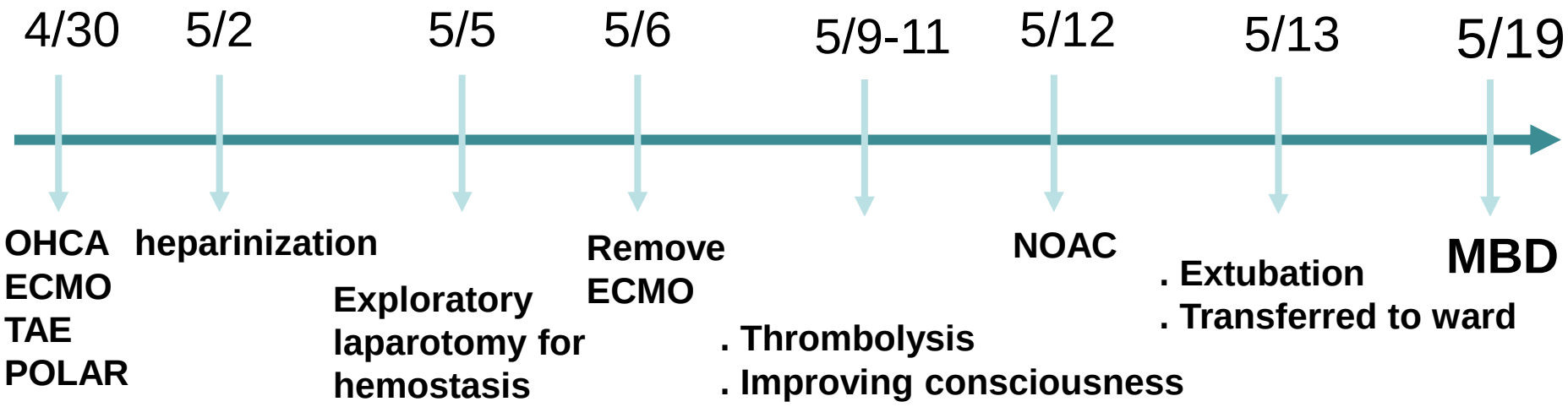
5/5	• V/B: >2500ml in the morning
	• 14:00PM Arrange operation: Exploratory laparotomy
	  • Internal bleeding with much blood clots about 1000ml
	  • No obvious arterial bleeding was noted
	  • Diffuse oozing over pelvic rough surface --> Floseal 10ml and surgiceal were applied for hemostasis
	• Antegrade venography(PA angiography)
	  • Suspect iatrogenic injury to azygus vein. Patent RPA/LPA, but few residual thrombi in LPA branches with filling defect
	  • Weaning ECMO tomorrow due to concern of tamponade
	• V/B amount much decreased: 158ml

5/6	• CXR: suspect left side tension hemothorax with tracheal deviation • On Left chest chest tube: old blood 1500ml • Remove ECMO, hemodynamic stable

Clinical course

Date	
5/9	Thrombolysis : Embolus aspiration from left low PA through catheter, urokinase line infuse through Fountain catheter
5/10	Consciousness improving (E4VeM6)
5/11	Angiography showed good patency of left low PA branches. Remove fountain catheter
5/12	Rivaroxaban 20mg QD
5/13	Weaning ventilator, and extubation & Transfer to GYN ward
5/19	Discharge

Summary


4/30
5/2
5/5
5/6
5/9-11
5/12
5/13
5/19
OHCA
ECMO
TAE
POLAR
heparinization
Exploratory laparotomy for hemostasis
Remove ECMO
. Thrombolysis
. Improving consciousness
NOAC
. Extubation
. Transferred to ward
MBD

OPD f/u

CVS	Keep Rivaroxaban 20mg QD for 6 months No dyspnea when climb to 2F
GYN	OP wound good Suggest thrombophilia survey for PE risk factors in the future
Neuro	free T4, TSH, cortisol ACTH wnl
Psychiatry	Visual/auditory hallucination with mood agitation, poor memory, poor concentration, nightmare and poor sleep, fearfulness, crying, depressed, regressive response, self mutilation behavior - >arrange brain MRI, suspect psychosis due to hypoxic encephalopathy

Final diagnosis

- Postpartum hemorrhage related to uterine rupture after vaginal delivery, complicated with severe anemia and disseminated intravascular coagulopathy
  - s/p TAE on 2020/04/30, but persisted bleeding
  - s/p Postpartum total hysterectomy on 2020/4/30
  - s/p Exploratory laparotomy for hemostasis on 2020/05/05
- Out hospital cardiac arrest (OHCA), status post CPCR with ROSC, related to diffuse pulmonary embolism, improved status
  - s/p ECMO due to cardiogenic shock for diffuse thromboembolism since 2020/04/30 at ER, removed on 2020/05/06
  - s/p Embolus aspiration from left low PA through catheter, urokinase line infuse through Fountain catheter, 2020/05/09-05/11
- Pregnancy at GA 40 weeks of gestation, status post vaginal delivery on 2020/04/30

結 論

- 單一醫學中轉診以產科為多， 尤其高危險妊娠。
- 高危險妊娠嚴重度、 複雜性增加。
- 強化醫療單位風險管控、緊急應變能力
- 落實轉診
- 生產事故救濟法案說明暨教育訓練課程。

  風險管控、教育訓練
- 偏鄉醫療

敬請指導!