The provider's PPH knowledge, practices and their effects on emotional stress in PPH management

醫療提供者對產後出血（PPH）的知識、實踐及其在PPH管理中對情感壓力的影響

應宗和 醫師

中山醫學大學附設醫院

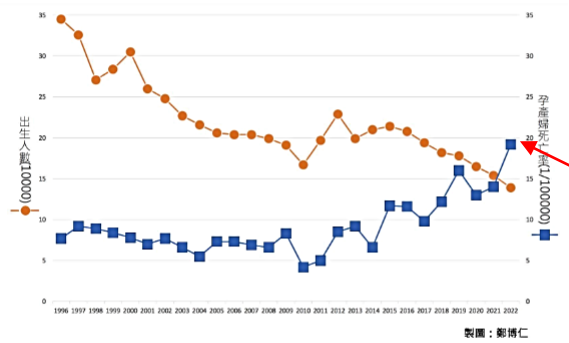
大綱

1. 前言
2. 案例分享
3. 產後出血的處理流程
4. 情緒智商（EI）與面對智商（CI）
5. 醫護人員的情緒壓力和倦怠感情感壓力、倦怠與應對策略
6. 討論

台灣孕產婦死亡率「創20年新高」

藝文 / 運勢 / 交通

台灣孕產婦死亡率「創20年新高」！比大陸一線城市多10倍　醫點出關鍵



▲台灣孕婦死亡率與新生兒人數出現「死亡交叉」。（圖／鄭博仁醫師提供）

記者嚴云岑／台北報導

台灣孕婦產檢頻率高居世界之冠，但產婦死亡率卻不降反升。婦產科醫師表示，台灣正式跨入「生不如死」時代，最新統計指出，2022年孕婦死亡率攀升為10萬分之20，不僅創下近20年新高，更是大陸沿海一線城市的5至10倍，呼籲政府面對產婦死亡除了通報與救濟外，另要設立完善檢討制度，才能避免類似死亡事件一再發生。

根據衛福部孕產婦死亡率報告，我國孕產婦死亡率於2019年為10萬分之16創下20年新高，2021年則為10萬分之14，但去年最新數據恐再創紀錄。林口長庚婦產科

https://www.ettoday.net/news/20230107/2417890.htm

2022年 孕產婦死亡率

10萬分之20

2022年 新生兒出生數
138986
（153820）

表32　歷年新生兒、嬰兒及孕產婦死亡概況

年別	新生兒 計(人)	新生兒 男(人)	新生兒 女(人)	新生兒 死亡率(每千活產)	嬰兒 計(人)	嬰兒 男(人)	嬰兒 女(人)	嬰兒 死亡率(每千活產)	孕產婦 死亡數(人)	孕產婦 死亡率(每十萬活產)
民國85年	1,129	621	508	3.5	2,169	1,183	986	6.7	25	7.7
民國86年	1,064	578	486	3.3	2,071	1,123	948	6.4	30	9.2
民國87年	918	546	372	3.4	1,784	1,015	769	6.6	24	8.9
民國88年	980	554	426	3.4	1,721	977	744	6.1	24	8.4
民國89年	1,038	575	463	3.4	1,789	992	797	5.8	24	7.8
民國90年	865	485	380	3.4	1,559	863	696	6.0	18	7.0
民國91年	745	415	330	3.0	1,325	721	604	5.4	19	7.7
民國92年	624	324	300	2.7	1,105	574	531	4.9	15	6.6
民國93年	623	358	265	2.9	1,146	645	501	5.3	12	5.5
民國94年	605	343	262	2.9	1,026	563	463	5.0	15	7.3
民國95年	554	307	247	2.7	943	524	419	4.6	15	7.3
民國96年	588	342	246	2.9	959	547	412	4.7	14	6.9
民國97年	538	291	247	2.7	897	496	401	4.6	13	6.6
民國98年	452	233	219	2.4	778	417	361	4.0	16	8.3
[illegible]	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10[illegible]	[illegible]	258	200	2.2	761	446	315	3.6	14	6.6
民國104年	539	291	248	2.5	881	490	391	4.1	25	11.7
民國105年	503	[illegible]	216	2.4	811	439	372	3.9	24	11.6
民國106年	[illegible]86	267	219	2.5	772	412	360	4.0	19	9.8
民國107年	474	[illegible]	217	2.6	752	416	336	4.2	22	12.2
民國108年	413	[illegible]	176	2.4	671	379	292	3.8	28	16.0
民國109年	387	[illegible]10	177	2.4	586	333	253	3.6	21	13.0
[illegible]0年	425	[illegible]	188	[illegible]	647	359	288	4.1	22	14.0

註：本表資料自民國97年起死因分類為ICD-10

根據台灣衛生福利部國民健康署的資料，台灣2022年孕產婦死亡原因的統計如下：
產後出血：39.4%
妊娠高血壓與毒血症：27.3%
羊水栓塞：19.2%
心臟病：10.9%
其他：3.2%
備註： 2016-2020年孕產婦前三大死因皆為產科栓塞、產後出血、伴有(合併或併發)明顯蛋白尿的妊娠性高血壓。

孕產婦死亡率
（每10萬活產嬰兒數）
2017　9.8
2018　12.2
2019　16.0
2020　13.0
2021　14.0
2022　20.0

全球孕產婦死亡原因 Global Causes Of Maternal Death

	Abortion		Embolism		Haemorrhage		Hypertension		Sepsis		Other direct causes		Indirect causes	
	N	% (95% UI)	N	% (95% UI)	N	% (95% UI)	N	% (95% UI)	N	% (95% UI)	N	% (95% UI)	N	% (95% UI)
Worldwide	193 000	7·9% (4·7–13·2)	78 000	3·2% (1·8–5·5)	661 000	27·1% (19·9–36·2)	34[illegible]000	14·0% (11·1–17·4)	261 000	10·7% (5·9–18·6)	235 000	9·6% (6·5–14·3)	672 000	27·5% (19·7–37·5)
Developed regions	1100	7·5% (5·7–11·6)	2000	13·8% (10·1–22·0)	2400	16·3 (11·1–24·6)	1[illegible]00	12·[illegible]% (10·0–16·8)	6[illegible]0	4·7% (2·4–11·1)	2900	20·0% (16·6–27·5)	3600	24·7% (19·5–33·9)
Developing regions	192 000	7·9% (4·7–13·2)	76 000	3·1% (1·7–5·4)	659 000	27·1% (19·9–36·4)	341 000	14·0% (11·1–17·4)	260 000	10·[illegible]% (5·9–18·7)	232 000	9·6% (6·4–14·3)	668 000	27·5% (19·7–37·6)
Northern Africa	490	2·2% (0·9–4·9)	720	3·2% (0·9–8·9)	8300	36·9% (24·1–51·6)	3800	16·9% (11·9–22·9)	[illegible]300	5·8% (2·3–1[illegible])	3800	17·1% (7·7–30·8)	4000	18·0% (9·5–30·2)
Sub-Saharan Africa	125 000	9·6% (5·1–17·2)	27 000	2·1% (0·8–4·5)	321 000	24·5% (16·9–34·1)	209 000	16·0% (11·7–21)	134 000	10·[illegible]% (5·5–18·5)	119 [illegible]	9·0% (5·1–15·7)	375 000	28·6% (19·9–40·3)
Eastern Asia	420	0·8% (0·2–2·0)	6500	11·5% (1·6–40·6)	20 000	35·8% (10·9–68·2)	5900	10·4% (3·9–20·2)	1500	2·6% (0·4–9·7)	80[illegible]	14·[illegible]% ([illegible]–51·3)	14 000	24·9% (6·4–58·8)
Southern Asia	47 000	5·9% (1·5–17·3)	17 000	2·2% (0·5–6·8)	238 000	30·3% (14·0–54·8)	80 000	10·3% (5·8–16·6)	107 000	13·7% (3·3–35·9)	65 000	8·3% (3·3–17·7)	22[illegible]000	2[illegible]·3% (12[illegible]–55·1)
Southeastern Asia	11 000	7·4% (2·8–18·4)	18 000	12·1% (3·2–33·4)	44 000	29·9% (15·2–51·3)	21 000	14·5% (8·4–22·7)	8100	5·5% (1·8–15·0)	20 000	13·8% (5·6–31·2)	[illegible]5000	16·8% (7·8–34·[illegible])
Western Asia	860	3·0% (1·0–7·6)	2600	9·2% (3·3–22·6)	8900	30·7% (17·4–49·1)	3900	13·4% (7·5–21·2)	1400	4·8% (1·5–13·1)	4500	15·6% (6·6–33·7)	6700	23·4% (11·3–43·1)
Caucasus and central Asia	250	4·6% (2·7–8·2)	590	10·9% (6·2–18·2)	1200	22·8% (17·2–30·3)	790	14·7% (11·6–18·3)	460	8·5% (5·7–13·6)	910	16·8% (12·6–23·2)	1200	21·8% (16·2–29·9)
Latin America and Caribbean	6900	9·9% (8·1–13·0)	2300	3·2% (2·6–4·7)	16 000	23·1% (19·7–27·8)	15 000	22·1% (19·9–24·6)	5800	8·3% (5·6–12·5)	10 000	14·8% (11·7–19·4)	13 000	18·5% (15·6–22·6)
Oceania	290	7·1% (1·2–22·9)	610	14·8% (1·9–47·6)	1200	29·5% (8·5–61·7)	560	13·8% (4·9–25·8)	200	5·0% (0·6–18·5)	510	12·4% (2·3–38·7)	710	17·4% (4·7–44·3)

Data shown are the estimated proportion of cause of death (%) with 95% uncertainty interval (95% UI).

Table 1: Distribution of causes of deaths by Millennium Development Goal regions

	Antepartum		Intrapartum		Postpartum		Haemorrhage total	
	N	% (95% UI)	N	% (95% UI)	N	% (95% UI)	N	% (95% UI)
Worldwide	158 000	6·5% (4·3–9·6)	23 000	0·9% (0·4–2·2)	480 000	19·7% (12·9–28·9)	661 000	27·1% (19·9–36·2)
Developed regions	700	4·8% (3·3–7·9)	510	3·5% (1·6–11·1)	1200	8·0% (4·7–15·5)	2400	16·3% (11·1–24·6)
Developing regions	157 000	6·5% (4·3–9·6)	23 000	0·9% (0·4–2·2)	479 000	19·7% (12·9–29)	659 000	27·1% (19·9–36·4)
Northern Africa	720	3·2% (1·5–6·2)	380	1·7% (0·3–6·8)	7200	32·0% (18·9–47·3)	8300	36·9% (24·1–51·6)
Sub-Saharan Africa	110 000	8·4% (5·0–13·7)	12 000	0·9% (0·2–3)	200 000	15·2% (8·6–25·1)	321 000	24·5% (16·9–34·1)
Eastern Asia	3800	6·6% (1·6–17·4)	210	0·4% (0·1–1·7)	16 000	28·7% (6·1–63·9)	20 000	35·8% (10·9–68·2)
Southern Asia	30 000	3·8% (1·5–8·5)	3400	0·4% (0·1–1·5)	205 000	26·1% (10·4–51·4)	238 000	30·3% (14·0–54·8)
Southeastern Asia	7000	4·7% (2·0–10·7)	3100	2·1% (0·3–8·7)	34 000	23·1% (9·4–46·1)	44 000	29·9% (15·2–51·3)
Western Asia	1700	6·0% (2·9–11·7)	710	2·5% (0·4–10·4)	6400	22·2% (10·1–41·5)	8900	30·7% (17·4–49·1)
Caucasus and central Asia	280	5·2% (3·5–7·9)	230	4·2% (1·6–10·7)	720	13·4% (9·4–19·8)	1200	22·8% (17·2–30·3)
Latin America and Caribbean	4[illegible]00	[illegible]·8% (4·5–7·8)	2900	4·1% (2·1–9·0)	9200	13·3% (10·9–16·4)	16 000	23·1% (19·7–27·8)
Oceania	200	4·8% (1·0–[illegible]3·8)	76	1·8% (0·1–11·3)	940	22·9% (4·1–57·8)	1200	29·5% (8·5–61·7)

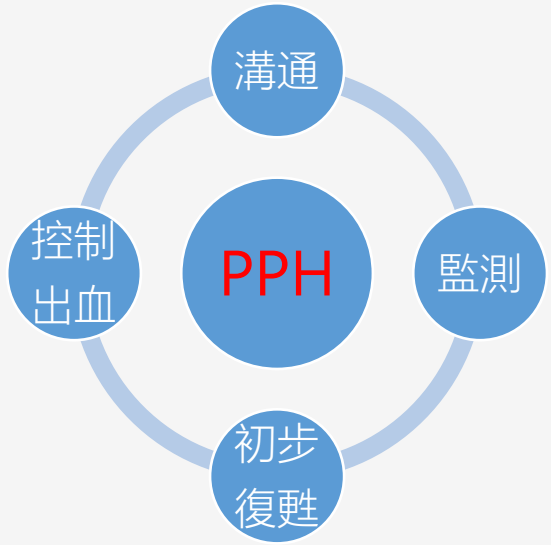
Percentages shown are the subgroup as a proportion of all deaths for that region in the input dataset.

Table 2: Subgroup analysis of haemorrhage deaths by Millennium Development Goal region

Say L, Chou D, Gemmill A, et al. Global causes of maternal death: a WHO systematic analysis. Lancet Glob Health. 2014;2(6):e323–e333.

產後出血（PPH）的處理步驟

步驟	具體行動
1. 溝通 Communication	向多學科團隊求助
2. 監測 Monitoring	監測病人生命體徵和血液指標，如血紅蛋白、血球比容、血小板、凝血狀態和酸鹼平衡及乳酸水平
3. 初步復甦 （五個行動） Initial resuscitation	1.通過周邊靜脈導管補充液體，2.血型檢測，3.放置第二條靜脈導管以備輸血，4.給予10-12升/分鐘補充氧氣， 5.防止低體溫
4. 控制出血 Hemorrhage control	1.使用子宮收縮劑，如催產素或喜克潰，或者巧特欣 2.進行雙手子宮按壓和按摩，以壓迫血管減慢或停止出血 3.評估"4 T's"原因（子宮無力、撕裂、胎盤滯留、凝血功能障礙）； 4.使用子宮按摩和Bakri球囊等措施



4T：
Tone : Uterine atony
Trauma : Lacerations
Tissue : Retained placenta
Thrombin : Coagulation defects

Initial management of primary postpartum hemorrhage: a survey
THE JOURNAL OF MATERNAL-FETAL & NEONATAL MEDICINE 2021, VOL. 34, NO. 17, 2841–2847

原發性產後出血的初步處置 Initial management of primary postpartum hemorrhage

一篇研究針對五家醫院和一個婦產科會議上的235名醫生進行了標準化開放式調查，
詢問他們在PPH初期建議採取哪些行動

研究結果摘要

分類	行動或指標	參與者報告比例 (CI)
溝通	尋求幫助或呼叫多學科團隊	45 (95% CI: 38-51)
監測	詢問生命體徵	38 (95% CI: 32-44)
	要求進行全血細胞計數	21 (95% CI: 16-26)
	進行凝血檢測	18 (95% CI: 13-23)
	進行動脈氣體值測定	14 (95% CI: 10-18)
	進行尿管插入	14 (95% CI: 10-19)
初期復蘇	立即給予晶體液體增量的必要性	44 (95% CI: 37-50)
	插入大口徑靜脈導管以實現快速補液治療	38 (95% CI: 32-45)
	加熱溶液	4 (95% CI: 1-6)
	覆蓋患者或使用加熱床墊	1 (95% CI: 1-2)
	進行交叉配對或為輸血做準備	14 (95% CI: 10-18)
	使用氧氣	13 (95% CI: 9-18)
出血控制	雙手子宮壓迫	37 (95% CI: 31-43)
	強烈的子宮按摩	63 (95% CI: 56-69)
	使用子宮收縮劑	94 (95% CI: 92-97)
	使用Bakri球囊等子宮填塞資源	29 (95% CI: 24-35)
	提到了探查和止血夾的工具	60 (95% CI: 54-66)

註：數據為百分比，括號內為 95% 置信區間 (CI)。

Initial management of primary postpartum hemorrhage: a survey
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結果

80%的受訪者僅提及了16項建議行動中的3項。僅有8%的受訪者提及了16項行動中的10項，沒有受訪者提及了14項或更多

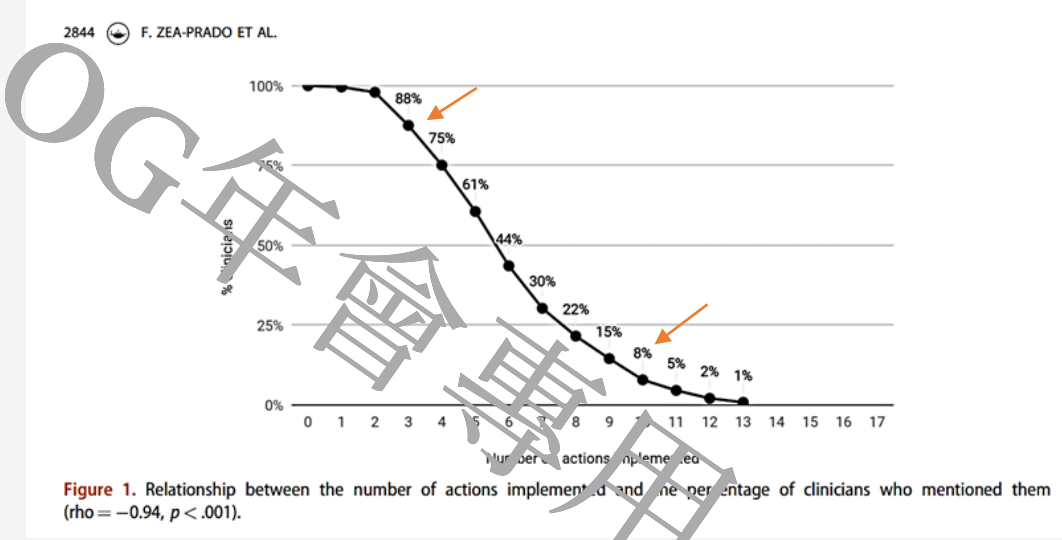

Figure 1. Relationship between the number of actions implemented and the percentage of clinicians who mentioned them (rho = −0.94, $p < .001$).

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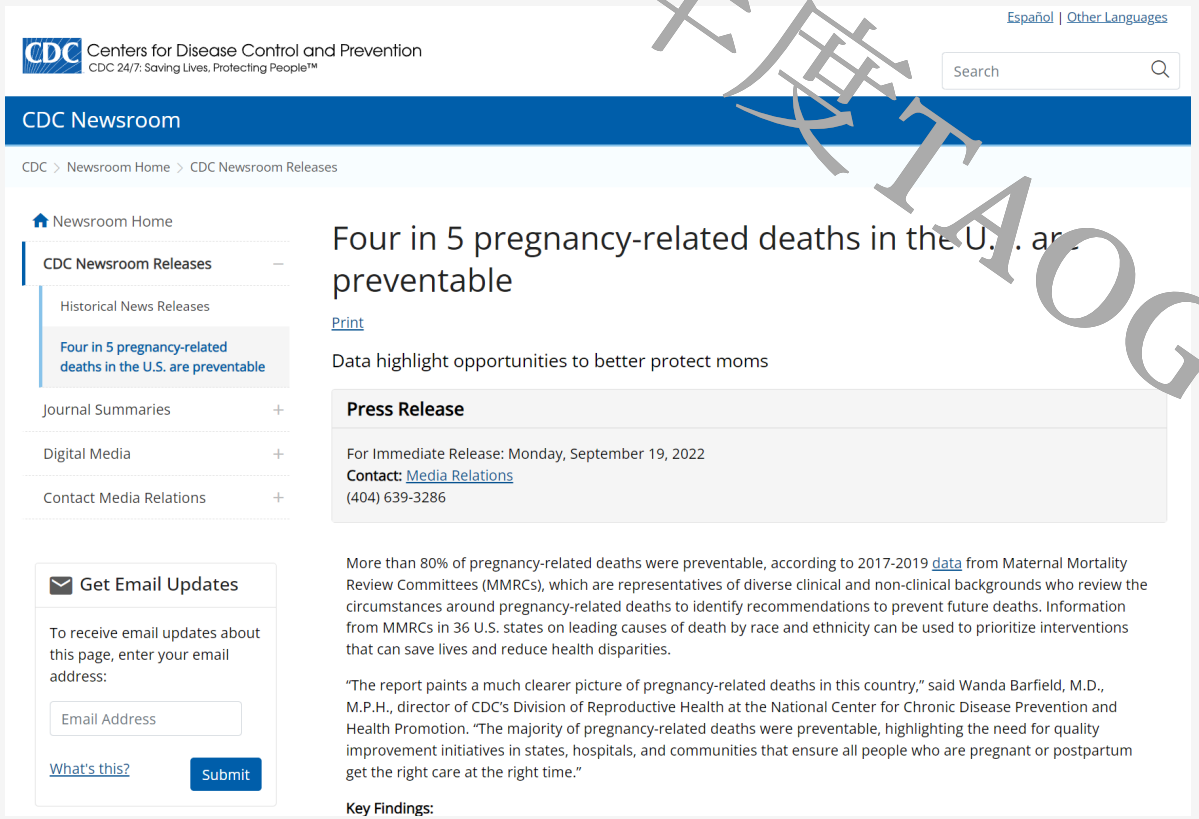
懷孕相關死亡的可預防性 Preventability Of Pregnancy-related Deaths

根據美國疾病控制與預防中心（CDC）的數據，**超過80%**的懷孕相關死亡是可以預防的 2022/9/19



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CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

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Four in 5 pregnancy-related deaths in the U.S. are preventable

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Four in 5 pregnancy-related deaths in the U.S. are preventable

Print

Data highlight opportunities to better protect moms

Press Release

For Immediate Release: Monday, September 19, 2022
Contact: Media Relations
(404) 639-3286

More than 80% of pregnancy-related deaths were preventable, according to 2017-2019 data from Maternal Mortality Review Committees (MMRCs), which are representatives of diverse clinical and non-clinical backgrounds who review the circumstances around pregnancy-related deaths to identify recommendations to prevent future deaths. Information from MMRCs in 36 U.S. states on leading causes of death by race and ethnicity can be used to prioritize interventions that can save lives and reduce health disparities.

"The report paints a much clearer picture of pregnancy-related deaths in this country," said Wanda Barfield, M.D., M.P.H., director of CDC's Division of Reproductive Health at the National Center for Chronic Disease Prevention and Health Promotion. "The majority of pregnancy-related deaths were preventable, highlighting the need for quality improvement initiatives in states, hospitals, and communities that ensure all people who are pregnant or postpartum get the right care at the right time."

Key Findings:

Among the 1,018 pregnancy-related deaths (*2017-2019*), a **preventability determination** was made for 996 deaths. Among these, 839 (84%) were determined to be preventable (Table 6).

Table 6. Percentage of pregnancy-related deaths determined by MMRCs to be preventable, data from Maternal Mortality Review Committees in 36 US states, 2017–2019*

	n	%
Preventable	839	84.2
Not Preventable	157	15.8

*A preventability determination was missing (n=4) or unable to be determined (n=18) for a total of 22 (2.2%) pregnancy-related deaths

https://www.cdc.gov/reproductivehealth/maternal-mortality/docs/pdf/Pregnancy-Related-Deaths-Data-MMRCs-2017-2019-H.pdf

Case presentation

Case 1: 34 y/o woman, G6P4A2, PPH and OHCA after vaginal delivery

Case 2: 36 y/o woman, G3P3, retained placenta after vaginal delivery

Case 1: 34-year-old woman, G6P4A2, OHCA

Before admission

- **GA 38 weeks s/p induction of labor and vaginal delivery at a women and children's hospital**

- **Immediate postpartum hemorrhage**
→ sent to a local hospital 2 hours after delivery

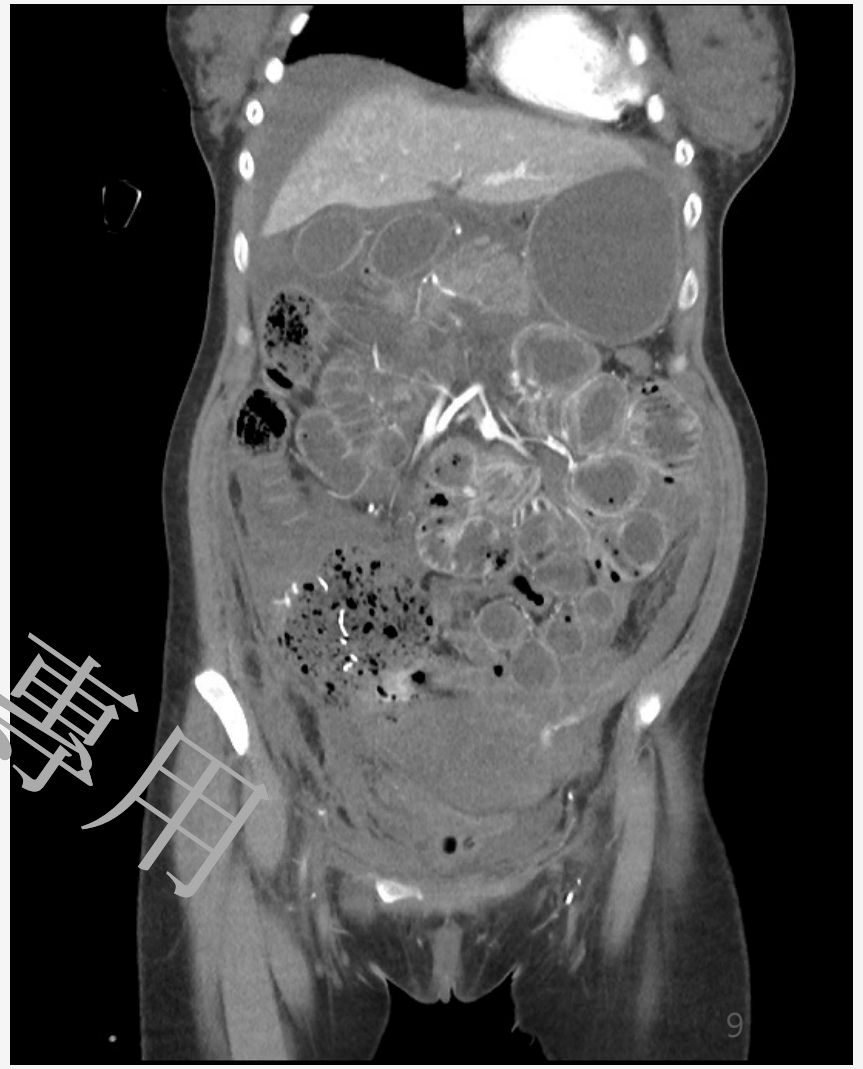
- **Lost of consciousness**
→ **CPR, EKG showed PEA**

- **ROSC and repeated circulation collapse**

- **Transferred to our ER**

ER

- **GCS: E1M1VT**
Bedside ultrasound: massive intra-abdominal bleeding
- **Exploratory laparotomy** revealed uterine rupture
→Subtotal hysterectomy
Blood loss 8000 ml
- **Massive transfusion** (L-RBC 24U、PPH 1U、FFP 12U)
- **Transarterial embilization of bilateral uterine arteries**
- **Intensive care**



Case 1: 34-year-old woman, uterine rupture

ICU care for 15 days

- **No recovery of consciousness**
- **Brain CT scan:** hypoxic-ischemic encephalopathy
- **EEG:** non-convulsive epilepticus with poor response to external stimulation, diffuse encephalopathy and poor brain function.

- **Brain MRI**

1. Hypoxic ischemic encephalopathy
2. SDH of left parietal region, left occipital region and along cerebral falx

Transferred to RCC for long term care

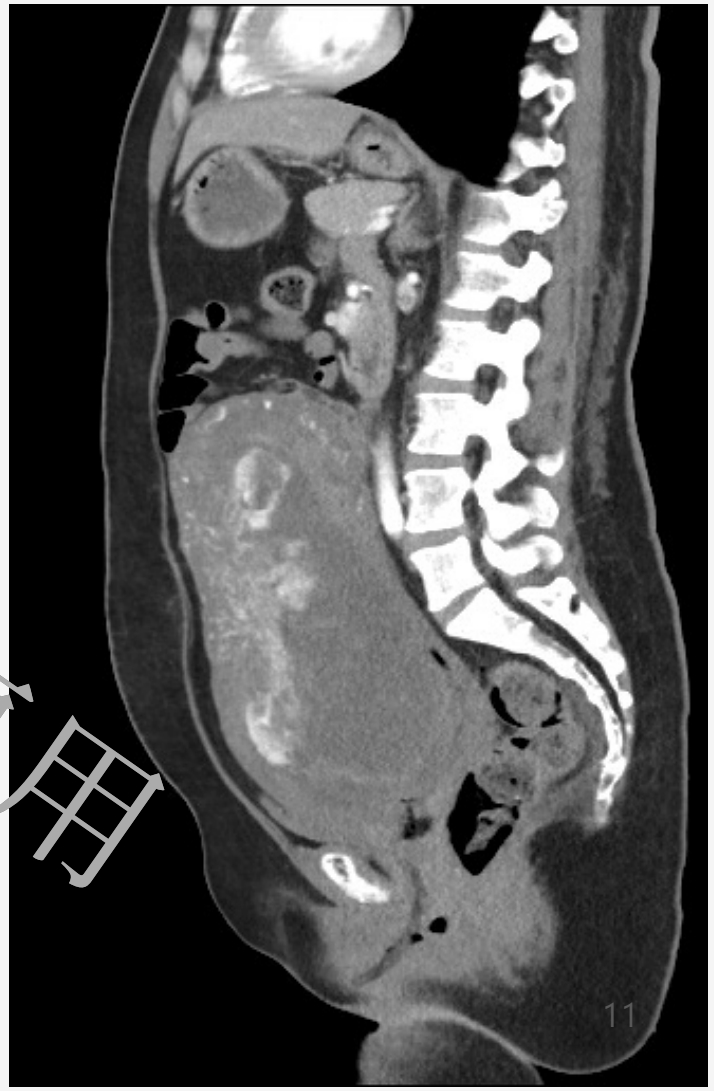
Case 2: 36-year-old woman, G3P3, retained placenta

Before admission

- **Delivery at another hospital**
- **Retained placenta and postpartum hemorrhage**
s/p oxytocin, methergine and PRBC 4U
- **Transferred to our hospital**

ER

- **Vital signs:**
T: 36.7 C, Pulse: 97/min,
RR: 19/min, BP :126/70mmHg
- **Hb. 6.7 g/dl**
- **Blood transfusion: LPR 2U**
- **Prophylactic abx:**
Ceftriaxone)1g+ Metronidazole 500mg
- **Piton-s 10 IU IVD**
- **Ultrasound:** retained placenta, suspect placenta accreta
- **Arrange CT scan**

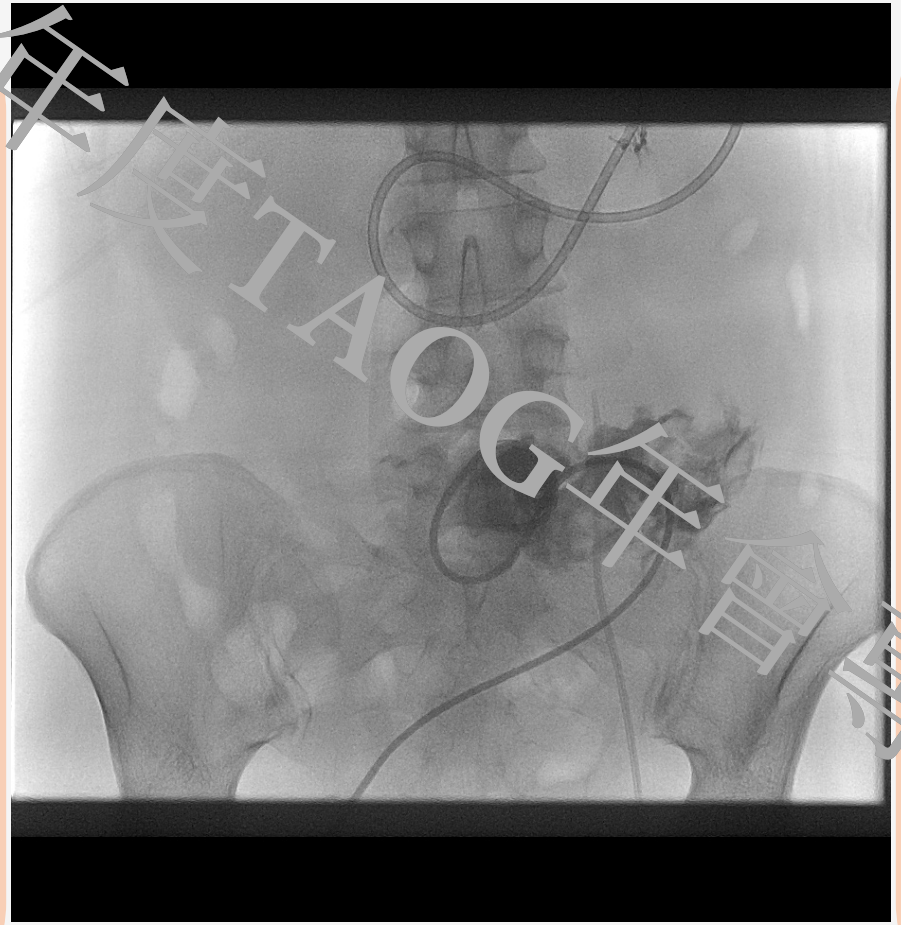


Case 2: 36-year-old woman, placenta accreta

Postpartum day 1

- **Ward**
- **Blood transfusion with LPR 2U and FFP 2U**
- **Rechecked Hb 7.2 g/dl**

- **Six hours after admission: transarterial embilization of bilateral uterine arteries**

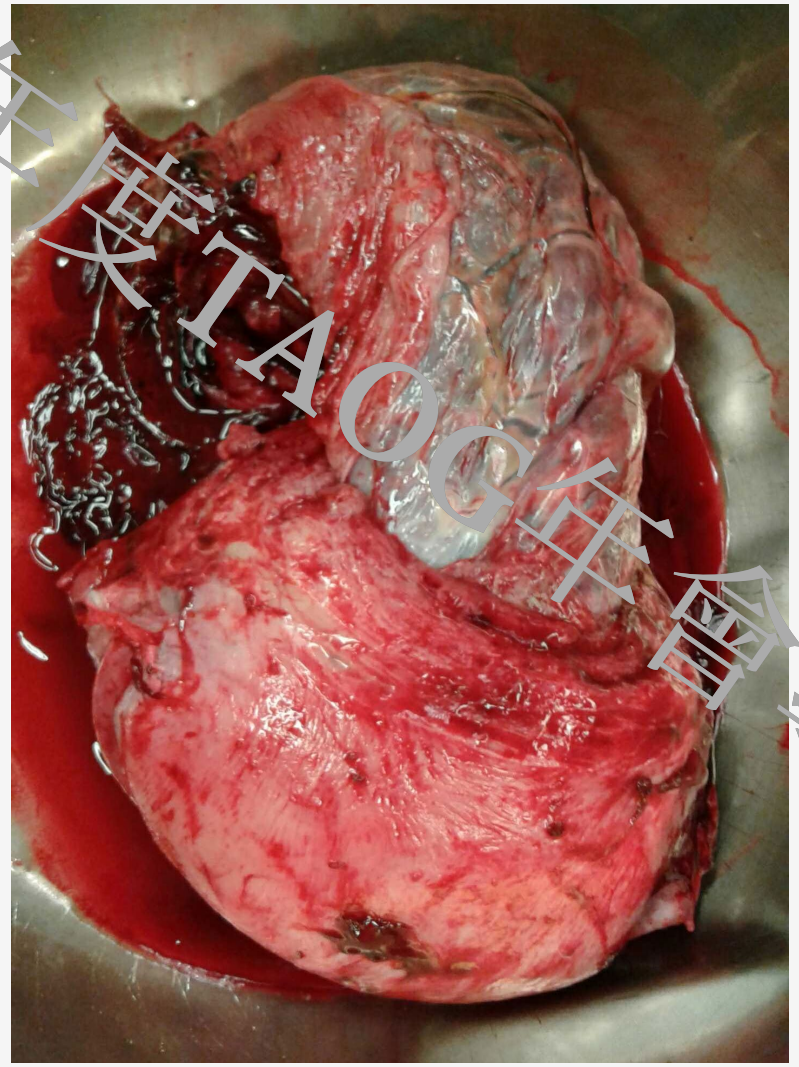


- **Arrange operation**

Case 2: 36-year-old woman, placenta increta

Postpartum day 2

- **Operating room**
- **Failed attempt of manual removal under anesthesia**
- **Convert to subtotal hysterectomy**
- **OP findings:**
  Placenta increta
- **Blood loss: 1200 c.c., blood transfusion PRBC 4U**



Ward

- **Stable postoperative course**
- **Discharged on the 10th day of hospitalization**

Discussion

Management of patients transferred due to postpartum hemorrhage

面對產後出血轉診患者的處理

關於嚴重產後出血管理的10項實證醫學建議
Ten practical, evidence-based recommendations for managing severe PPH

建議編號	建議內容	備註
1	計劃並演練分步驟方法	提前計劃和練習，以便在危急時刻迅速採取行動
2	了解嚴重PPH的症狀和體徵	及早識別和處理產後出血
3	在診斷PPH後的10分鐘內尋求幫助	能夠及時得到醫療幫助，提高救治成功率
4	確定非常高風險的子宮切除和終末器官功能障礙的婦女	可提前評估並制定相應的治療計劃
5	在分娩後一小時內進行子宮壓縮縫合	可以減少出血量和併發症發生率
6	診斷為胎盤前置或植入症的病例，由多學科團隊計劃分娩	多學科團隊合作，提高分娩成功率和減少併發症
7	胎盤植入症和胎盤貫穿症的保守治療	適用於特定人群，如希望保留生育能力的婦女，但多數情況下應選擇剖腹產子宮切除術作為首選治療
8	排除Von Willebrand病，需要多學科方法	了解患者病史，確保適當的治療和預防策略
9	隨手準備纖維蛋白原濃縮物	快速補充纖維蛋白原，降低出血風險
10	實施大量輸血方案，輸注足夠的血液和血液製品，輸氧和矯正DIC	確保病人在危急時刻能得到足夠的血液

1. Plan and rehearse a step by step approach	Early recognition of haemorrhage, Identifying cause of bleeding, quick and effective evaluation and management of bleeding
2. Know the symptoms and signs of severe PPH	Symptoms: anxiety, restlessness, tachypnea, hunger to air, confusion. Signs : tachycardia, hypotension, cold clamminess, pale, oliguria or anuria
3. Call for help	Within 10 minutes after making the diagnosis of PPH
4. Identify women at very high risk of hysterectomy and end organ dysfunction	Cases like placenta previa, placenta accreta, uterine rupture, number of previous cesarean section
5. Perform uterine compression sutures	Within one hour of delivery.
6. Diagnosed cases of placenta previa or accrete	Plan delivery by a multidisciplinary team
7. Conservative management of placenta accrete and placenta percreta	Considered only in carefully selected women who desire future fertility Planned cesarean hysterectomy is the treatment of choice for multiparous women.
8. Exclude Von Willebrand disease	Requires multidisciplinary approach
9. Have Fibrinogen concentrate on hand	For cases of intrauterine death of fetus, abruption, amniotic fluid embolism etc.
10. Implement a protocol for massive transfusion	By administration of adequate blood and blood products, oxygen delivery and correction of DIC.

[Table/Fig-2]: Ten practical evidence based recommendations for managing severe PPH.

Journal of Clinical and Diagnostic Research. 2017 Feb, Vol-11(2): QE01-QE05
P Reddi Rani and Jasmina Begum,
Recent Advances in the Management of Major Postpartum Hemorrhage

降低母嬰傳輸流程的障礙 Reduce the hurdle of maternal transfer

在轉診流程進行之前:

- 在醫療機構中進行產後出血處理教育。
- 加強地方醫療診所/當地醫院員工與更高一級轉診中心員工之間的合作關係。

病人的轉送時機及時間:

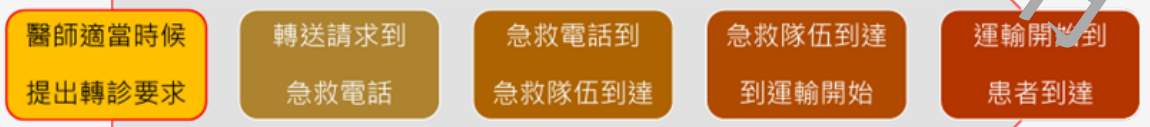
1. 轉診要求- 緊急呼叫時間
   - 向病患和家屬解釋
   - 準備轉診信函
2. 緊急呼叫- 緊急救援隊抵達時間
3. 緊急救援隊抵達- 開始運送病患時間
4. 開始運送病患- 病患抵達時間

病人轉送的目的:

- 加護病房
- 心內血管治療
- 緊急手術

Shimada, et al (2021), Hospital transfer for patients with postpartum hemorrhage in Yokohama, Japan: a single-center descriptive study. Acute Med Surg

Shock index (SI)



Resuscitation 復甦處置

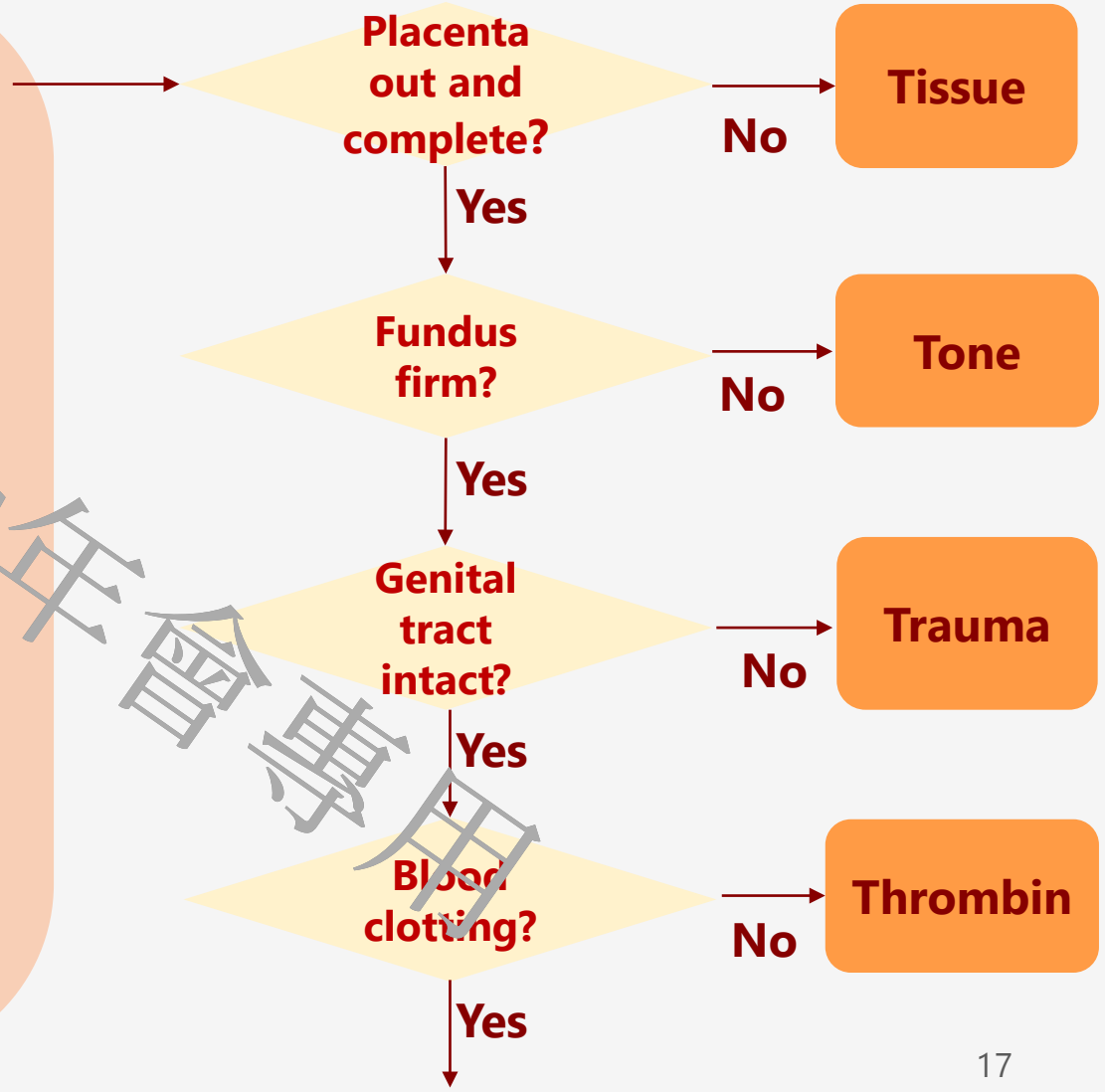
Initial assessment
- Rate/volume of bleeding
- Put patient in supine position, oxygen 15 L/minute, keep warm
- Continuous HR and SpO2 monitoring, q15 minute monitor, Temp.
- Routine oxytocin
- 4Ts (tissue, tone, trauma, thrombin)

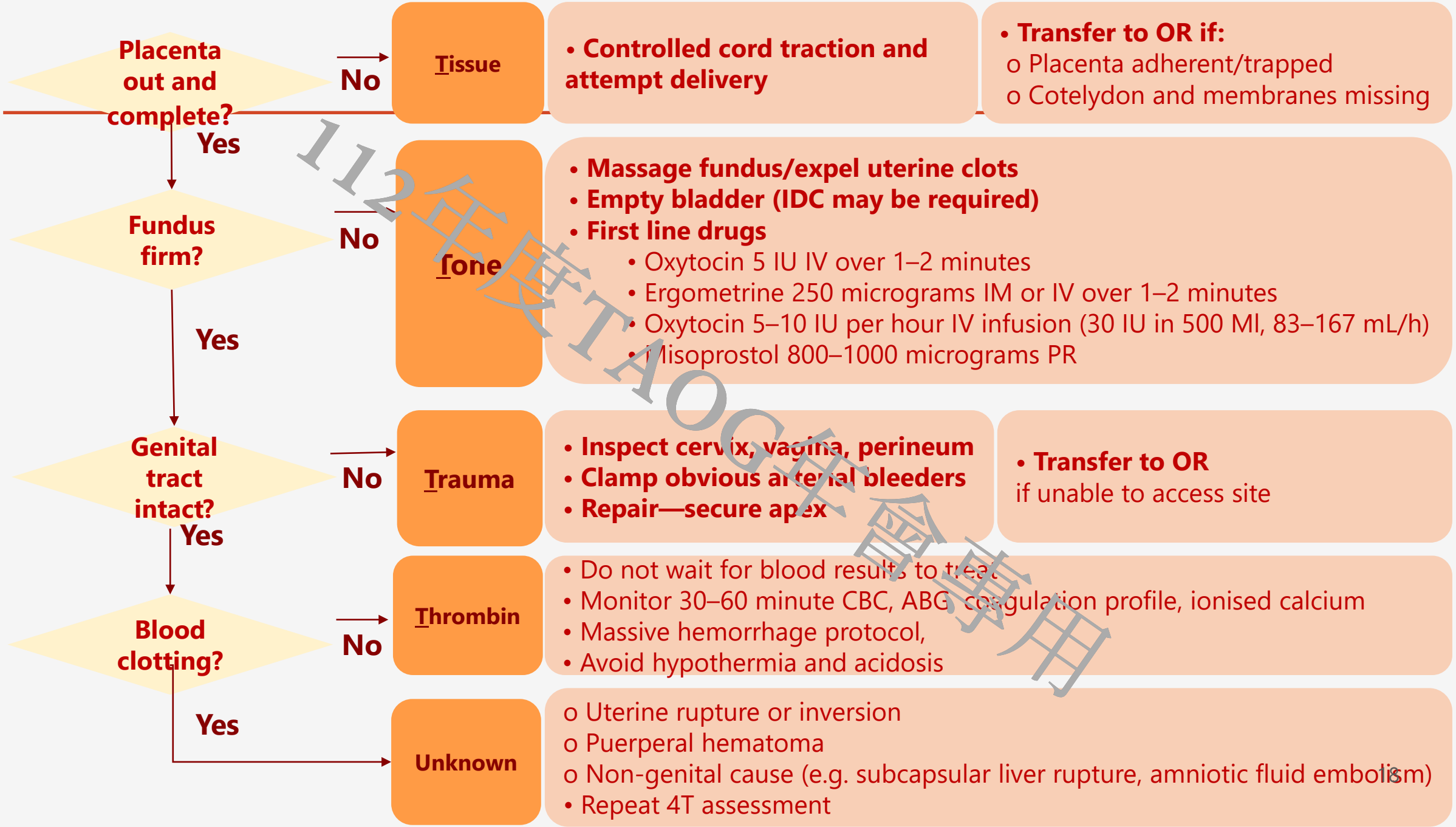
Urgent bloods tests
- CBC, chemistry profile, coagulation profile, blood gas,
- Cross-matching

Initial fluid resuscitation (use warmed IV fluids)
- Two 14–16G IV cannulas
- Avoid crystalloid IV > 1–2 L
- Limit synthetic colloid use (if used then < 1.5 L)
- On Foley and monitor I/O balance
- If indicated, RBC 2 u

Tranexamic acid 1 g IV over 10 minutes
- Consider early administration (within 3 hours)

Consider **coagulation profile** concurrently





Yes

Unknown

Assess for
- **Uterine rupture or inversion**
- **Puerperal hematoma**
- **Non-genital cause (e.g. subcapsular liver rupture, amniotic fluid embolism)**
- **Repeat 4T assessment**

Monitor:
- Vital signs – assess for shock
- Fundal tone
- Vaginal blood loss
- Hemoglobin

Treatment:
- Treat anaemia
- VTE prophylaxis o Monitor for DVT/PE

Self-care advice

Yes

Bleeding controlled?

No

- **Bimanual compression**
- **Transfer to operating room**

- Coagulopathy may influence surgical decisions
- Consider future fertility if possible

Medical management for PPH

MEDICAL TREATMENT (Uterotonics)			
Medications	**Dose**	**Contraindications Or cautions**	**Side effects/ Comments**
Oxytocin	5 IU slow IV X 2 (may have repeat dose) Or 40 IU /500 ml Hartmann's solution at 125 ml/hour	Overdose or prolonged use can cause water intoxication. IV push dosing may cause hypotension	Rare
Ergometrine	0.5 mg slow IV/IM	Hypertension/ toxemia, patients with HIV taking protease inhibitors, patient with vascular disease, hepatic or renal or sepis	Nausea, vomiting and increase B/P
Carboprost	250 µg IM every 15 minutes up to 8 times Direct Intra myometrial 0.5 µg	Active or history of pulmonary disease (asthma), renal hepatic or cardiac disease	Nausea, vomiting, and diarrhea
Mispoprostol	1000 µg rectally	Cardiovascular disease	Nausea, vomiting, diarrhea, pyrexia, shivering
MECHANICAL METHODS		Intra uterine balloon tamponade Consider Interventional Radiology (Selective arterial Embolisation / Balloon Occlusion)	
SURGICAL TREATMENT		Brace Suture Bilateral uterine artery ligation Bilateral Internal iliac ligation Hysterectomy (Second consultant)	

[Table/Fig-1]: Summary of management of major PPH.

Journal of Clinical and Diagnostic Research. 2017 Feb, Vol-11(2): QE01-QE05
P Reddi Rani and Jasmina Begum,
Recent Advances in the Management of Major Postpartum Hemorrhage

Invasive treatment for PPH

- Uterine artery embolization
  - Can be another conservative management measure for PPH if technical conditions and skilled human resources are available for its use.

- Surgical interventions:
  - If bleeding does not stop despite treatment using uterotonics and other available conservative interventions. (compression suture techniques, uterine and hypogastric artery ligation, and hysterectomy.)

Surgical procedures and Endovascular treatment

Tissue	Manual removal + currettage
Tone	• Intrauterine balloon tamponade • Laparotomy: internal manual aortic compression • B-Lynch compression suture • Bilateral uterine artery ligation • Transarterial embolizaton • Hysterectomy (consider early)
Trauma	• Optimize exposure with retractors • Inspect cervix, vagina, perineum • Assess uterus intact • Repair – secure apex
Thrombin	• Intrauterine balloon tamponade • Bilateral uterine artery ligation • Transarterial embolizaton • Hysterectomy (consider early)
Unknown	• Examination under anesthetic • Laparotomy

情緒智商（EI）與面對智商（CI）

情緒智商 Emotional intelligence	**應對智商** Coping intelligence
認識、理解、控制和表達自己和他人的情緒	在面對困難、挑戰或壓力時，調節自己的情緒、認知和行為
分為四個方面：自我察覺、自我管理、社會察覺和關係管理	分為三個方面：問題解決、社會支持和正向思考
可以通過學習和訓練來提高	可以通過實踐和反饋來提高
對個人的生活和工作有積極的影響	對個人的成長和幸福有積極的影響
可以幫助一個人選擇合適的應對策略，並且提高應對效果	可以增強一個人的情緒調節能力，並且提高情緒智商水平

https://wiki.mbalib.com/zh-tw/%E6%83%85%E7%BB%AA%E6%99%BA%E5%8A%9B

情緒智商（EI）與面對智商（CI）之間的關係

情緒智商和應對智商之間的相對應關係是一個複雜而有趣的話題，它涉及到心理學、神經科學和行為經濟學等多個領域。根據一些研究，情緒智商和應對智商之間存在以下幾種相對應關係：

- **正向關係**：這種關係意味著情緒智商和應對智商之間是正相關的，也就是說，一個人的情緒智商越高，他的應對智商也越高，反之亦然。這種關係的原因可能是，情緒智商可以幫助一個人更好地理解自己和他人的情緒，並且選擇更有效的應對策略，從而提高他的應對效果和滿意度。同時，應對智商可以幫助一個人更好地調節自己的情緒，並且增強他的情緒穩定性和適應性，從而提高他的情緒智商水平。
- **負向關係**：這種關係意味著情緒智商和應對智商之間是負相關的，也就是說，一個人的情緒智商越高，他的應對智商越低，反之亦然。這種關係的原因可能是，情緒智商會讓一個人過於敏感和同理他人的情緒，從而影響他的判斷力和決策能力。同時，應對智商會讓一個人過於理性和客觀地分析問題，從而忽略他自己和他人的情感需求。
- **無關係**：這種關係意味著情緒智商和應對智商之間沒有顯著的相關性，也就是說，一個人的情緒智商和他的應對智商之間沒有必然的聯繫。這種關係的原因可能是，情緒智商和應對智商都是由多種因素影響的複雜組合，它們之間不是單一的因果關係，而是多元的互動關係。同時，情緒智商和應對智商都會隨著時間、場合、目標和人際關係等變化而變化，它們之間不是固定的數值，而是動態的過程。

Provider emotional stress and burnout in management of postpartum hemorrhage
在產後出血管理中，醫護人員的情緒壓力和倦怠感情感壓力、倦怠與應對策略

從"常規"情商（EI）技能集過渡到"更專業化"的應對智能技能集的能力的簡化圖，可以在不斷升級的壓力水平和複雜性的背景下查看」。
這個簡化圖顯示了人們如何從常規情商技能集過渡到更專業化的應對智能技能集，以更好地應對不斷增加的壓力水平和複雜性[2]。這種過渡可以幫助人們在面對極端壓力和高認知負荷時更好地應對挑戰。

Facing Adversity during Graduate Medical Training: The Concept of 'Coping Intelligence' | IntechOpen. https://www.intechopen.com/chapters/78405
Emotional Intelligence Frameworks, Charts, Diagrams & Graphs - PositivePsychology.com. https://positivepsychology.com/emotional-intelligence-frameworks/.

Provider emotional stress and burnout in management of postpartum hemorrhage
在產後出血管理中，醫護人員的情緒壓力和倦怠感

- 產後出血管理
- 因產後出血緊急情況所需物資不足而感到無助
- 不良的胎兒和母親預後

情緒壓力與職業倦怠
Emotional stress and burnout

職業倦怠的三個組成部分

Manifestation
- Depersonalization 人格解體
- Emotional exhaustion 情緒耗盡
- Diminished sense of personal accomplishment 個人成就感降低

Symptoms:
- 工作感到筋疲力盡
- 害怕受到主管的指責
- 醫護人員積極尋求新的職位
- 與女性患者的溝通不良和不尊重的護理（醫護人員忽視患者、高聲說話，或提供有限的隱私）

應對策略（CI）
Coping strategy

Emotion-based coping 基於情感的應對:
Active coping 積極應對
- 辨識問題或壓力來源
- 積極努力排除它們
- 促進正向結果

Problem-based coping 問題導向應對：
Prospective approach前瞻性方法
- Rigorous training (drills) 嚴格訓練（演練）
- Guidelines and checklists指南和清單

Retrospective approach回顧性方法
- Peer-protected group discussions: M&M conferences

Provider emotional stress and burnout in management of postpartum hemorrhage
在產後出血管理中，醫護人員的情緒壓力和倦怠感

Emotional stress and burnout
情緒壓力和職業倦怠

Coping strategy

- Emotion-based coping
- Problem-based coping

Mature coping mechanisms

- Affiliation 聯繫
- Altruism 利他主義
- Anticipation預期
- Compensation補償
- Self-assertion自我主張
- Observation觀察
- Sublimation昇華

Immature coping mechanisms

- Acting out 宣洩行為
- Compartmentalization 隔離
- Denial 否認
- Dissociation 分離
- Projection 投射
- Reaction formation 反應形成
- Regression退行

沿著連續體系的應對機制 Coping mechanisms along a continuum

Mature		Intermediate		Immature	
Mechanism	Comment	Mechanism	Comment	Mechanism	Comment
Affiliation **聯繫**	壓力下，人們會將自己的問題與他人分享並尋求幫助。	**Displacement** **移情作用**	改變情緒的對象，同時情感保持不變。	**Acting out** **宣洩行為**	為了表達個人感覺無法以其他方式表達的思想或情感而進行極端行為。
Altruism **利他主義**	對另一個個體的善意行為。	**Intellectualization** **知性化**	使用推理來避免與無意識衝突對抗的行為（例如，使用“思考”來避免“感受”）。	**Compartmentalization** **隔離**	一種分離感的形式，其中自己的某些部分與其他部分的意識分離，並表現得好像有一套獨立的價值觀。

備註：不同防禦機制的列表（由成熟到不成熟排列）。
廣泛地定義，成熟的防禦機制以健康且有意識的與現實的關係為特點

沿著連續體系的應對機制 Coping mechanisms along a continuum

Mature		Intermediate		Immature	
Mechanism	Comment	Mechanism	Comment	Mechanism	Comment
Anticipation 預期	透過預先預期和準備應對該挑戰，降低困難挑戰的壓力。	**Rationalization 合理化**	態度、信念或行為的正當性說明	**Denial 否認**	拒絕接受現實或事實，假裝一個痛苦的事件、想法或情感不存在，儘管對他人明顯可見。
Compensation 補償	透過在另一個領域中超常表現，來應對某一領域的挑戰。	**Repression 壓抑**	無意識地從意識中排除一個想法或情感	**Dissociation 分離**	將通常伴隨著某種情況或想法的情感分開或延遲。

備註：不同防禦機制的列表（由成熟到不成熟排列）。
廣泛地定義，成熟的防禦機制以健康且有意識的與現實的關係為特點

沿著連續體系的應對機制 Coping mechanisms along a continuum

Mature		Intermediate		Immature	
Mechanism	Comment	Mechanism	Comment	Mechanism	Comment
Self-assertion 自我主張	透過以非攻擊性、非強制性或非操縱性的方式表達自己的思想和感受來處理壓力。	**Undoing 撤消**	透過從事相反的行為，試圖「消除」或移除不健康、破壞性或其他威脅性的思考或行動。	**Projection 投射**	將願望、慾望、思想或情感歸因於他人。
Observation 觀察	通過反思自己的思想、感受、動機和行為，再做出適當、理性的回應來處理具挑戰性或壓力的情況。			**Reaction formation 反應形成**	表現出與自己所思所感相反的行為。採取自己有意識地拒絕的態度和行為。
Sublimation 昇華	將不可接受的衝動引導到社會可接受的方向。			**Regression 退行**	回到早期發展階段。

備註：不同防禦機制的列表（由成熟到不成熟排列）。
廣泛地定義，成熟的防禦機制以健康且有意識的與現實的關係為特點

結論

醫療提供者的產後出血（PPH）知識、實踐及其在PPH管理中對情感壓力的影響

病人照護

- 遵守指導方針和清單
- 當出血對更保守的治療無反應時，早期考慮子宮切除術

情感壓力、倦怠與應對策略

- 辨識情感壓力和倦怠的症狀
- 基於情感的應對：
  - 辨識壓力來源，積極促進正向結果
- 基於問題的應對：
  - 查看指導方針和清單
  - M&M會議
- 成熟的應對機制

有效應對的好處

- 減少倦怠
- 醫師在高壓情況下保持理智立場
- 改善臨床結果
- 減少病人安全事件

Reference

1. Giouleka, S., et al. (2022). "Postpartum Hemorrhage: A Comprehensive Review of Guidelines." Obstet Gynecol Surv 77(11): 665-682.

2. Queensland Clinical Guidelines. Postpartum haemorrhage Guideline No. MN18.1-V10-R23 Queensland Health.2021. Available from: http://www.health.qld.gov.au/qcg

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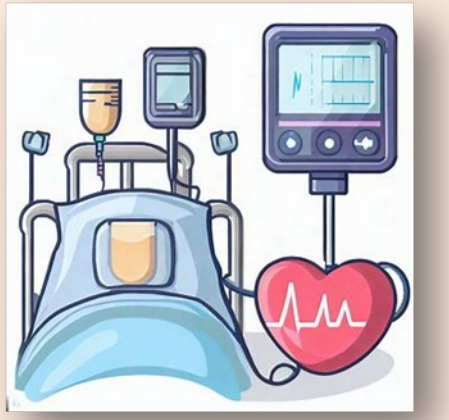
Thank you



The provider's PPH knowledge, practices and their effects on emotional stress in PPH management

醫療提供者對產後出血（PPH）的知識、實踐及其在PPH管理中對情感壓力的影響