Execution by Organ Procurement: Breaching the dead donor rule in China

Matthew P. Robertson and Jacob Lavee

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Organ transplantation (Robertson)

- Organ transplantation around the world is typically from voluntary donors
- Developed countries have systems of altruistic giving of organs, with informed consent from donor and/or family
- States enable, encourage, and police a system of altruistic, voluntary organ donation

Organ trafficking

"The practice of using exploitation, coercion, or fraud to steal or illegally purchase or sell organs." (Meshelemiah and Lynch 2019)

- Often carried out by transnational criminal gangs
- Involves kidneys and is from living donors
- States are supposed to criminalise and seek to suppress illicit trafficking activity

Organ trafficking in China

- China is the only (known) country where state institutions are involved in trafficking organs from prisoners on a systematic basis
- Growth of the system began in 1980s-1990s; very rapid expansion in 2000
- Tens of thousands of transplants annually (numbers disputed; claims range from 10,000 - 90,000)
- No legal framework until 2007
- System said to be reformed since 2015 to no longer use prisoners

Falsified data

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Analysis of official deceased organ donation data casts doubt on the credibility of China's organ transplant reform

Matthew P. Robertson, Raymond L. Hinde & Jacob Lavee

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Abstract

Background

Since 2010 the People's Republic of China has been engaged in an effort to reform its system of organ transplantation by developing a voluntary organ donation and allocation infrastructure. This has required a shift in the procurement of organs sourced from China's prison and security apparatus to hospital-based voluntary donors declared dead by neurological and/or circulatory criteria. Chinese officials announced that from January 1, 2015, hospital-based donors would be the sole source of organs. This paper examines the availability, transparency, integrity, and consistency of China's official transplant data.

- Co-authored with Dr. Jacob Lavee, leading cardiac transplantation surgeon and long-term collaborator
- Key figure in reforms to Israeli law that prevented transplant tourism and encouraged domestic donations

Research question: Inside the operating room

- What is the role of the medical professional in this programme?
- Anecdotes long circulated of surgeon involvement in killing via organ procurement
- In transplant medicine this is a violation of the dead donor rule (DDR). Foundational to transplant ethics
- DDR states donor must be dead when vital organs procured, procurement must not be the cause of death

Inside the operating room

- If surgeons violate DDR, then they are implicated in the killing of the donor
- The medical establishment then becomes an extension of the coercive and predatory power of the state
- Can these claims be tested?

Heart and lung procurement

- Involves a donor whose heart is beating
- If heart suffers cardiac arrest, it will in most cases be nonviable in new host
- This differs from kidney procurement after execution at a field site
- High degree of technological sophistication (pre-op, surgery, post-op)
- Demands tight coordination with security authorities who control the prisoner bodies

Brain death determination (Lavee)

- An evaluation for brain death should be considered in patients who have suffered a massive, irreversible brain injury of identifiable cause.
- Brain death is defined as the irreversible loss of all function of the brain, including the brain stem.
- The three essential findings in brain death are coma, absence of brain stem reflexes, and apnea.

Brain death determination

- A patient properly determined to be brain dead is legally and clinically dead.
- In the absence of either complete clinical findings consistent with brain death or ancillary tests demonstrating brain death, brain death cannot be diagnosed.
- Organ procurement for transplantation can be commenced only after brain death has been determined or else the organ procurement becomes the mode of execution.

Brain death determination: coma

- No evidence of responsiveness.
- Eye opening or eye movement to noxious stimuli is absent.
- Noxious stimuli should not produce a motor response other than spinally mediated reflexes.

Brain death determination: Absence of brain stem reflexes

- Absence of pupillary response to bright light in both eyes.
- Absence of ocular movements using oculocephalic testing and oculovestibular reflex testing.
- Absence of corneal reflexes.
- Absence of facial muscle movement in response to a noxious stimulus.
- Absence of pharyngeal (gag) and tracheal (cough) reflexes.

Brain death determination: apnea test

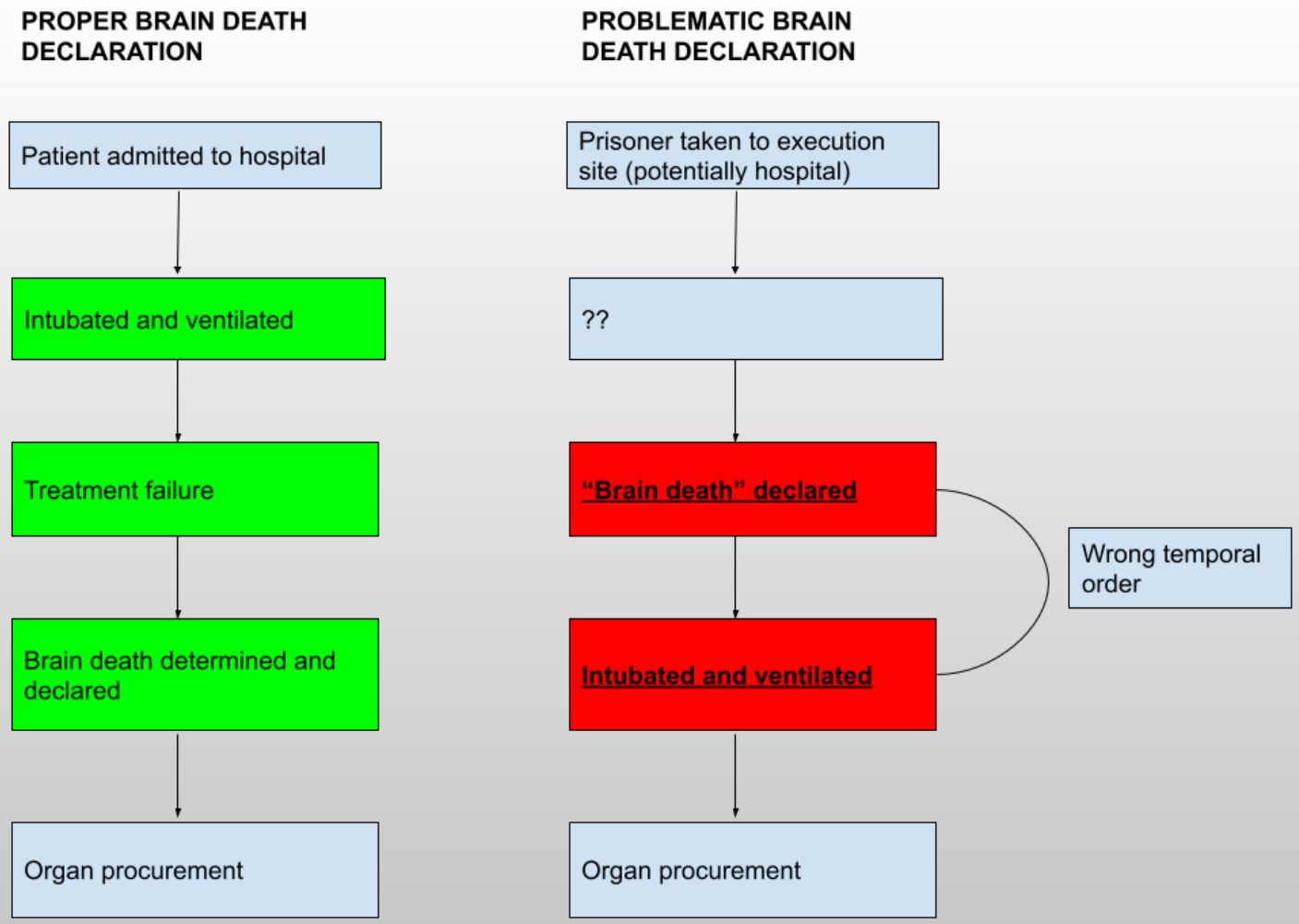
Before performing the apnea test, the physician must determine that the patient meets the following conditions:

- Core temperature $>$ 36°C or 96.8°F
- PaCO2 35-45 mm Hg
- Normal PaO2
- Normal blood pressure

Brain death determination: apnea test

- Connect a pulse oximeter
- Disconnect the ventilator
- Deliver 100% O2, 6 L/min by placing a catheter through the endotracheal tube and close to the level of the carina.
- Draw a baseline arterial blood gas
- Look closely for respiratory movements (abdominal or chest excursions that produce adequate tidal volumes) for 8-10 minutes
- Measure PaO2, PaCO2, and pH after approximately 8-10 minutes and reconnect the ventilator
- If respiratory movements are absent and PaCO2 is $\geq$ 60 mm Hg, the apnea test supports the diagnosis of brain death
- If respiratory movements are observed, the apnea test result is negative (i.e., does not support the diagnosis of brain death)

Appropriate versus problematic declaration of brain death



Research design (Robertson)

- If the prisoner is intubated *after* being declared brain dead, or *immediately prior* to procurement surgery, then they could not have been actually dead
- If brain death was not established, then heart procurement by the surgeon would be the proximate cause of death
- Health care workers would have become the executioners

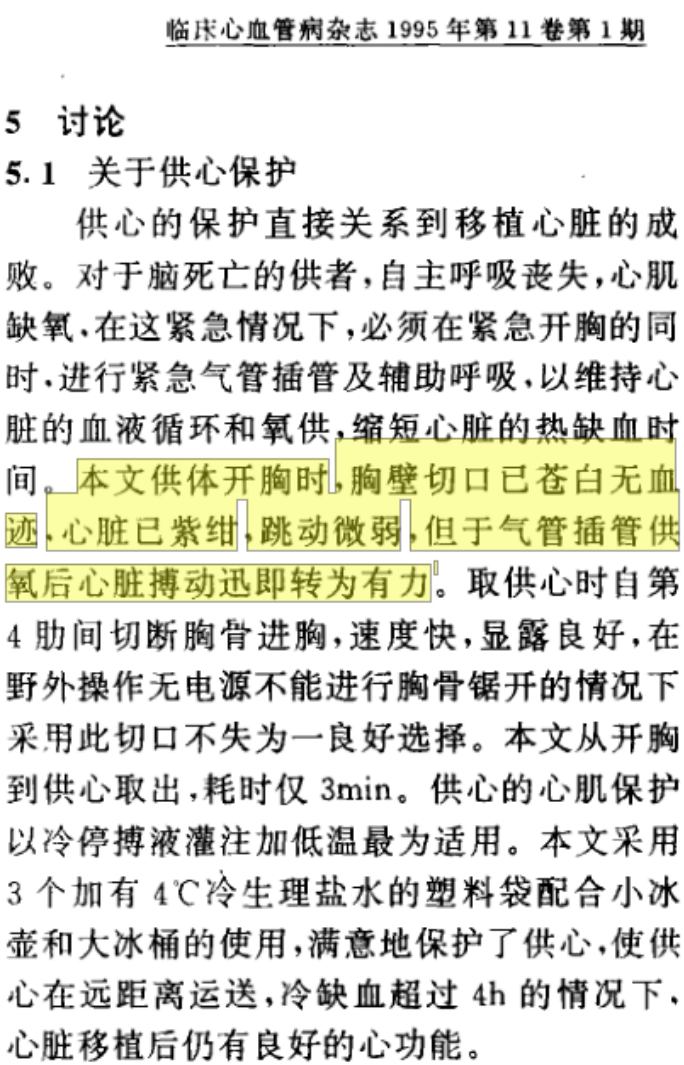
Strings

ts_intubation <- as_utf8(c("脑死亡后用麻醉机维持呼吸", "死亡后迅速建立人工呼吸", "自主呼吸丧失的脑死亡供体，在特定条件下应尽可能迅速建立辅助呼吸支持循环，维持供心的血氧供应，避免或缩短热缺血时间，同时迅速剖胸取心", "供体大脑死亡后，首先分秒必争地建立呼吸与静脉通道", "经气管切开气管插管建立人工呼吸", "快速胸部正中切口进胸", "供者脑死亡后迅速建立人工呼吸", "供心保护脑死亡后用麻醉机维持呼吸", "供体确定脑死亡后，气管插管，彻底吸除气道分泌物，用简易呼吸器人工控制呼吸", "供体脑死亡后，迅速建立人工呼吸", "供体脑死亡后快速正中开胸，同时插入气管导管人工通气", "脑死亡后，紧急气管插管", "供者行气管插管", "供者行气管插管，球囊加压通气，静脉注射肝素 200mg", "脑死亡后，用麻醉机维持呼吸", "供体在确认脑死亡后，气管插管，建立人工呼吸", "脑死亡后气管紧急插管，纯氧通气", "供体死亡后行人工呼吸、循环支持", "脑死亡后，气管插管", "脑死亡后立即气管内插管给氧", "脑死亡，面罩加压给氧，辅助呼吸", "脑死亡后，将供体取仰卧位，争取做气管插管", ...))

Algorithm

```
get_string_matches <- function(file_text, target_string){
  res <- afind(file_text, target_string, window = nchar(target
  location <- res$location
  distance <- res$distance
  match <- res$match
  context <- substr(file_text, as.integer(location)-70, as.int
  res2 <- as.data.table(cbind(target_string, location, distanc
  return(res2)
}
get_full_match <- function(path, file_name, target_strings) {
  file_text <- fread(paste0(path, file_name), sep = NULL, head
  res_afind <- future_map(target_strings, ~get_string_matches(
  res <- rbindlist(res_afind)
  res3 <- as.data.table(cbind(path, file_name, res))
  names(res3) <- c("path", "file_name", "target_string", "stri
  return(res3)
}
```

Raw data



临床心血管病杂志 1995 年第 11 卷第 1 期

5 讨论

5.1 关于供心保护

供心的保护直接关系到移植心脏的成败。对于脑死亡的供者，自主呼吸丧失，心肌缺氧，在这紧急情况下，必须在紧急开胸的同时，进行紧急气管插管及辅助呼吸，以维持心脏的血液循环和氧供，缩短心脏的热缺血时间。本文供体开胸时，胸壁切口已苍白无血迹，心脏已紫绀，跳动微弱，但于气管插管供氧后心脏搏动迅即转为有力。取供心时自第4肋间切断胸骨进胸，速度快，显露良好，在野外操作无电源不能进行胸骨锯开的情况下采用此切口不失为一良好选择。本文从开胸到供心取出，耗时仅 3min。供心的心肌保护以冷停搏液灌注加低温最为适用。本文采用3个加有 4℃冷生理盐水的塑料袋配合小冰壶和大冰桶的使用，满意地保护了供心，使供心在远距离运送，冷缺血超过 4h 的情况下，心脏移植后仍有良好的心功能。

脑死亡无偿器官捐献供体维护期的护理

李　丹　罗雅丹　董　力

摘要　总结脑死亡无偿器官捐献供体维护期的护理方法，包括生命体征的维护、心功能的维护、呼吸功能的维护、肾功能的维护、肝功能的维护以及人文关怀。认为通过维护期有效的护理措施可保持最终捐献器官的机能，确保其成功移植，发挥脑死亡器官供体捐献的最大的实际量；通过对捐献者告别仪式，对其家属实施人文关怀，可宣扬器官捐献让生命传承的义举，让更多人认可器官捐献、自愿捐献，缓解器官来源所难题，以挽救更多的生命。

关键词：脑死亡；器官捐献；供体；维护期；护理
中图分类号：R473　　文献标识码：B　　文章编号：1006－6411(2015)04－0020－02

当器官移植的来源处于瓶颈状态，脑死亡供体无疑是解决器官移植紧缺的首选办法，为广大患者带来了福音。自 2003 年卫生部颁布了“我国脑死亡判定标准(成人)和脑死亡判定技术规范(征求意见稿)”[1]，为脑死器官捐献工作提供有力的理论依据。近年来，我国脑死亡器官捐献(donation after brain death，DBD)已逐渐成熟，被普遍国人接受并提倡，我中心于 2010 年 1 月～2012 年 11 月期间完成了 18 例 DBD 供体的器官捐献工作，现将 DBD 供体维护期的护理体会报告如下。

1　临床资料

本组 DBD 供体病例中，男 15 例，女 3 例，年龄 12～41 岁，其中车祸至重度颅脑损伤 15 例，脑血管意外 2 例，脑胶质瘤 1 例，供体维护时间 12～40h，其中 2 例出现一过性血肌酐升高，所有病例均予呼吸机辅助呼吸，经过脱水、降颅压、呼吸兴奋等抢救性治疗，瞳孔散大固定，经本院伦理委员会论证符合供体器官捐献原则并同意捐献[2]，经脑死亡判定标准(成人)和脑死亡判定技术规范(征求意见稿)[1]判定为脑死亡。

2　脑死亡判定

首次判定经本院颅脑外科、心脏内科专家鉴定，本组 18 例 DBD 昏迷原因明确，排除各种原因的可逆性昏迷，脑干反射全部消失，无自主呼吸。经颅脑多普勒超声呈脑死亡图形，判定为脑干在内的全脑技能丧失的不可逆转的状态，观察 12h 无变化，提交本院神经内科、心脏内科、颅脑外科等主任组成的伦理委员会，并请市红十字会工作人员监督并讨论最终判定脑死亡。

3　供体维护期的护理

3.1　生命体征的维护　是否能成功完成器官捐献，维护生命体征平稳至关重要，而血压则是生命途象的关键，低血压时，各脏器有效灌注少，可造成器官衰竭，因此应动态观察血压变化，保持动脉收缩压 ＞100mmHg[3]。可使用一次性使用防逆流留置针经浅静脉将多巴胺等血管活性药物静脉泵入，准确调整剂量变化，保持血压波动稳定；体温维持在 36℃～37.3℃[3]，体温过高时使用冰帽冰敷头部，使用柴胡等退热剂；体温过低时使用加热毯，温度为 40℃～50℃适宜，已有肺部感染者应注意抗生素

工作单位：541002　桂林　中国人民解放军第 181 医院全军器官移植与透析治疗中心
李丹：女，大专，护师
通讯作者：董力

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重患者的舒适感受，让患者在接受护理的过程中，感受到生理、心理、社会及受尊重的需要，减轻了患者的身心痛苦和心理压力，满足了患者对舒适医疗的需求，提高了护理服务质量和患者满意度，改善了护患关系[4]。近年来，随着社会老龄化的逐渐上升趋势，COPD 的发病率也呈整体上升趋势。由于其早期症状缺乏特异性，随疾病进展肺功能呈中、重度受损，如果不接受规范治疗和恰当的护理，可能导致严重的心、肺功能障碍，甚至多脏器功能衰竭。同时因为 COPD 患者病程长，发复发作并影响其生活和社交，患者易形成焦虑、抑郁等不良情绪，尤其在急性加重期，给予舒适的心理和生理护理，可使患者身心处于最佳状态，更好地配合治疗，可明显缩短患者住院日、提高患者的满意度。同时，舒适护理使“以人为本”的护理理念深入护理人员的心中，提高了护理人员的工作素质和护理质量，因此值得在临床护理中推广应用。

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(本文编辑：王　萍　王　莎)

Examples from paper (Lavee)

[0573] The donor was intravenously injected with heparin 3mg/kg 1h before the operation. The sternum was transected from the 4th intercostal space into the chest, and the pericardium cut open. **The heartbeat was weak and the myocardium was purple. After assisted ventilation through tracheal intubation, the myocardium turned red and the heartbeat turned strong.** A needle at the root of the ascending aorta was used to perfuse with 1000ml of cold cardioplegic solution at 4c°...

Examples from paper

[0191] ...weight 65kg, blood type O, the same as the recipient's blood type, brain death via external trauma. **Before the chest is opened, 100mg of heparin is injected and the mask is pressurized to give oxygen to assist breathing.**

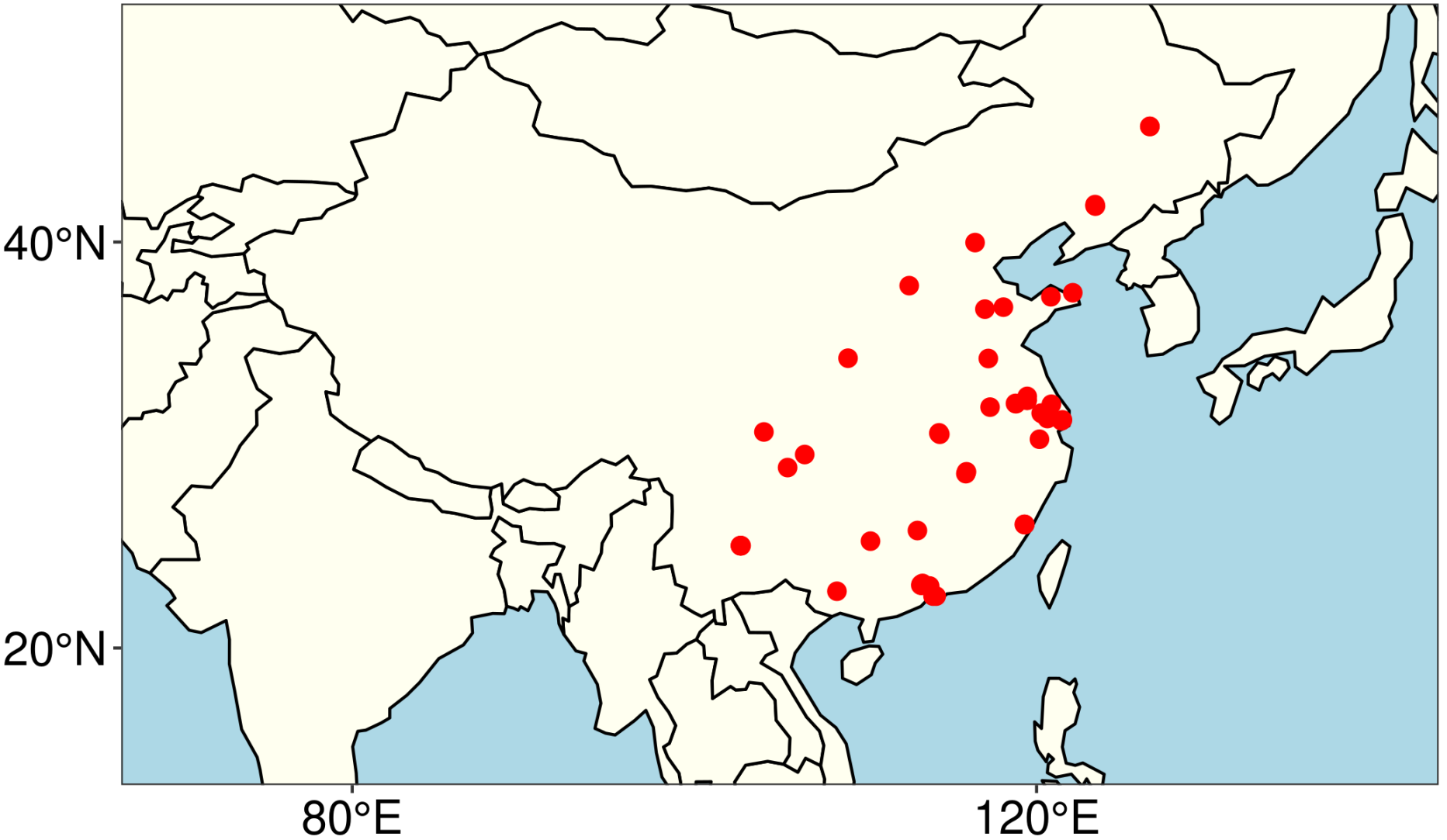
Examples from paper

[0278] 1. Donor extraction. **After the donor is declared brain dead, put donor in the supine position, strive for tracheal intubation,** quickly disinfect, drape, and cut.

Summary of results (Robertson)

- We found 71 papers documenting dead donor rule violations;
- Published between 1980 and 2015;
- Total of 348 medical workers;
- Total of 56 hospitals (12 military or paramilitary) in 33 cities in 15 provinces;
- Scale? We think this is 'tip of iceberg': papers were found at the end of a very big funnel

Map



Conclusion

- Is this ongoing? We do not know.
- A simple heuristic: if prisoners are no longer being used, then naturally it would not
- If prisoners *are* still being used, then it would be rational to believe that this practice continues
- We think there is compelling evidence that prisoners are still being used