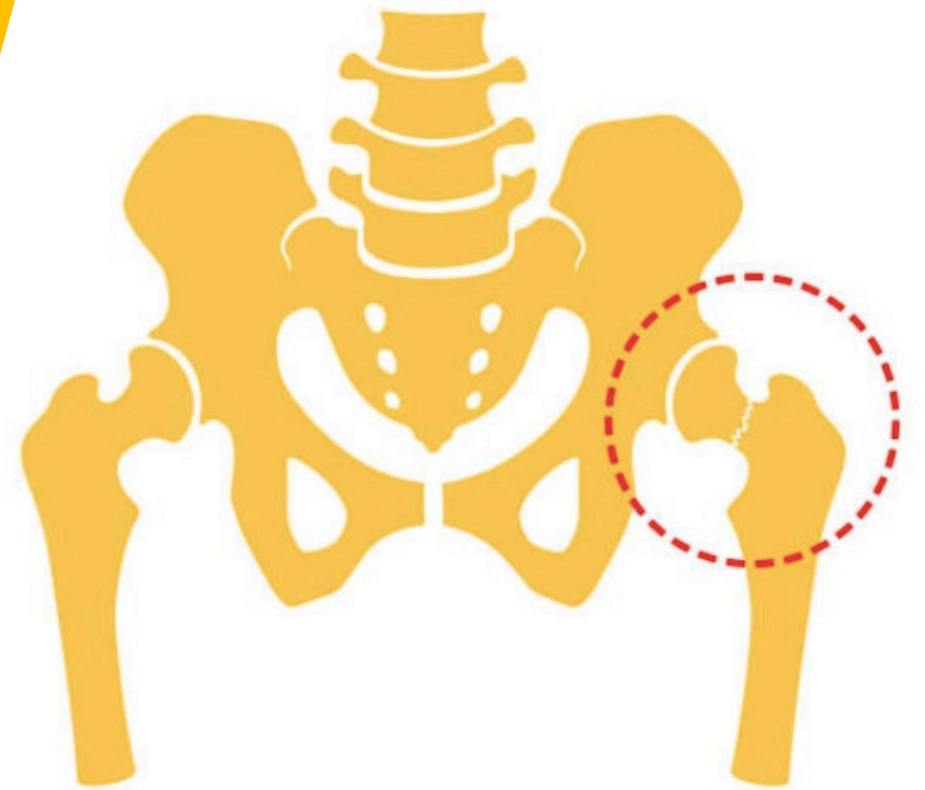


Spinal  
Anaesthesia

vs

General  
Anaesthesia

for #NOF





Samantha Kransingh

Anaesthetist / Kairehu

**Te Whatu Ora**

Health New Zealand

South Canterbury

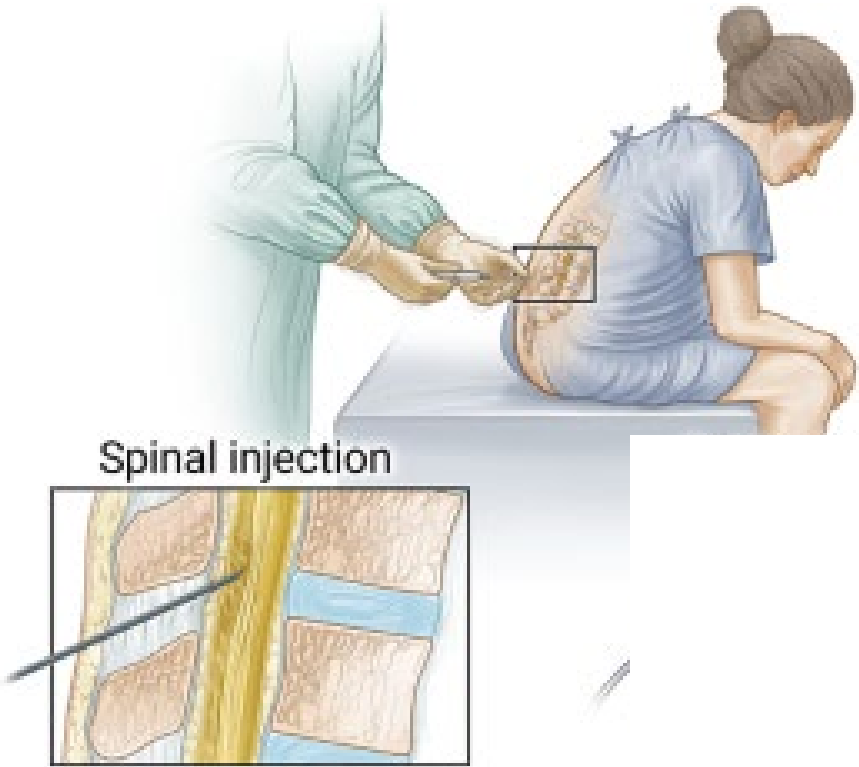
~ Durban, South Africa

~ Genk, Belgium



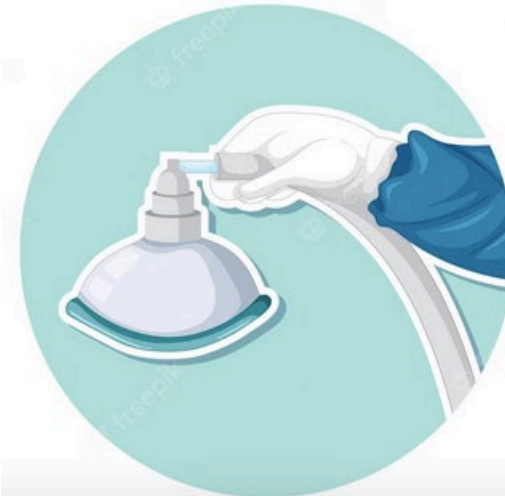


# General Anaesthesia



Spinal injection

## Spinal Anaesthesia



# Spinal Anaesthesia

Feasible  
mechanism for  
RA reducing  
complications?

**Sympathectomy**

↓ **airway instrumentation +  
pulmonary dynamics**

↓ **sedative or anaesthetics**

# Potential Effects of RA on Complications

- ↓ Bleeding – avoidance of BP spikes
- ↓ Infections - sympathectomy
- ↓ DVT - ↓ systemic inflammatory mediator release – coag cascade
- ↓ CVS stress
- ↓ Pulmonary complications



# International Fragility Fracture Network Delphi consensus statement on the principles of anaesthesia for patients with hip fracture

doi:10.1111/anae.14225

S. M. White,<sup>1</sup> F. Altermatt,<sup>2</sup> J. Barry,<sup>3</sup> B. Ben-David,<sup>4</sup> M. Coburn,<sup>5</sup> F. Coluzzi,<sup>6</sup> M. Degoli,<sup>7</sup> D. Dillane,<sup>8</sup> N. B. Foss,<sup>9</sup> A. Gelmanas,<sup>10</sup> R. Griffiths,<sup>11</sup> G. Karpetas,<sup>12</sup> J.-H. Kim,<sup>13</sup> M. Kluger,<sup>14</sup> P.-W. Lau,<sup>15</sup> I. Matot,<sup>16</sup> M. McBrien,<sup>17</sup> S. McManus,<sup>18</sup> L. F. Montoya-Pelaez,<sup>19</sup> I. K. Moppett,<sup>20</sup> M. Parker,<sup>21</sup> O. Porrill,<sup>22</sup> R. D. Sanders,<sup>23</sup> C. Shelton,<sup>24</sup> F. Sieber,<sup>25</sup> A. Trikha,<sup>26</sup> and X. Xuebing<sup>27</sup>

<sup>1</sup> Consultant Anaesthetist, Brighton and Sussex University Hospitals NHS Trust, Brighton, East Sussex, UK

<sup>2</sup> Associate Professor, División de Anestesiología, Escuela de Medicina, Pontificia Universidad Católica de Chile, Santiago, Chile

<sup>3</sup> Consultant Anaesthetist, Cairns Hospital, Queensland, Australia

<sup>4</sup> Professor of Anesthesiology, University of Pittsburgh Medical Centre, Pittsburgh, PA, USA

<sup>5</sup> Consultant Anaesthetist, Medical Faculty, RWTH Aachen University, Aachen, Germany

<sup>6</sup> Professor of Anaesthesia, Department Medical and surgical sciences and biotechnologies, Sapienza University of Rome, Polo Pontino, Latina, Italy

<sup>7</sup> Consultant Anaesthetist, Ospedale Civile di Baggiovara, Azienda Ospedaliero Universitaria di Modena, Modena, Italy

<sup>8</sup> Associate Professor, Anesthesiology and Pain Medicine, University of Alberta, Canada

<sup>9</sup> Associate Professor, Department of Anaesthesiology and Intensive Care Medicine, Hvidovre University Hospital, Hvidovre, Denmark

<sup>10</sup> Consultant Anaesthetist, Hospital of Lithuanian University of Health Sciences Kauno klinikos, Lithuania

<sup>11</sup> Professor of Anaesthesia, Peterborough and Stamford Hospitals NHS Trust, Peterborough, UK

<sup>12</sup> Consultant Anaesthetist, General University Hospital of Patras, Rio, Greece

<sup>13</sup> Professor of Anaesthesiology and Pain Medicine, Korea University College of Medicine, Seoul, South Korea

<sup>14</sup> Specialist Anaesthetist, Waitemata DHB, Auckland, New Zealand

<sup>15</sup> Consultant Anaesthetist, University of Hong Kong, Hong Kong, China

<sup>16</sup> Professor of Anesthesiology, Critical Care and Pain, Tel Aviv Medical Center, Sackeler School of Medicine, Tel Aviv, Israel

<sup>17</sup> Consultant Anaesthetist, Royal Victoria Hospital, Belfast, UK

<sup>18</sup> Consultant Anaesthetist, Cairns Hospital, Queensland, Australia

<sup>19</sup> Senior Specialist and Head of Emergency Anaesthesia Services, Department of Anaesthesia and Perioperative Medicine, Groote Schuur Hospital, University of Cape Town, Cape Town, South Africa

<sup>20</sup> Professor and Honorary Consultant Anaesthetist, Anaesthesia and Critical Care Section, Division of Clinical Neuroscience, University of Nottingham, Queen's Medical Centre Campus, Nottingham University Hospitals NHS Trust, Nottingham, UK

<sup>21</sup> Consultant Orthopaedic Surgeon, Peterborough and Stamford Hospitals NHS Trust, Peterborough, UK

<sup>22</sup> Consultant Anaesthetist, New Somerset Hospital, University of Cape Town, South Africa

<sup>23</sup> Assistant Professor of Anaesthesia, University of Wisconsin, Madison, IN, USA

<sup>24</sup> NIHR Doctoral Research Fellow and Anaesthetic Registrar, Lancaster Medical School and Wythenshawe Hospital, Manchester, UK

<sup>25</sup> Professor and Director of Anesthesiology, Johns Hopkins Bayview Medical Center, Baltimore, MD, USA

<sup>26</sup> Professor of Anaesthesia, All India Institute of Medical Sciences, New Delhi, India

<sup>27</sup> Consultant Anaesthetist, University of Hong Kong-Shenzhen Hospital, Shenzhen, China

network Delphi consensus  
anaesthesia for patients with hip

Number	Statement	Replied 'yes'
29	Either regional or general anaesthesia should be offered to patients	22 (79%)
27	Regional anaesthesia is preferred to general anaesthesia	17 (61%)
28	General anaesthesia is preferred to regional anaesthesia	0

## RAGA

### **Effect of Regional vs General Anesthesia on Incidence of Postoperative Delirium in Older Patients Undergoing Hip Fracture Surgery**

JAMA. 2022;327(1):50-58

## REGAIN

### **Spinal Anesthesia or General Anesthesia for Hip Surgery in Older Adults**

N Engl J Med 2021; 385:2025-2035

December 20, 2021

# Effect of Regional vs General Anesthesia on Incidence of Postoperative Delirium in Older Patients Undergoing Hip Fracture Surgery

The RAGA Randomized Trial

Ting Li, PhD<sup>1,2</sup>; Jun Li, PhD<sup>1</sup>; Liyong Yuan, MD<sup>3</sup>; [et al](#)

[» Author Affiliations](#) | [Article Information](#)

JAMA. 2022;327(1):50-58. doi:10.1001/jama.2021.22647

**Regional anesthesia without sedation did not significantly reduce the incidence of postoperative delirium compared with general anesthesia.**

Randomized,

Multicentre clinical trial

950 patients,

aged 65 years and older

9 university teaching hospitals in Southeastern China

December 20, 2021

# Effect of Regional vs General Anesthesia on Incidence of Postoperative Delirium in Older Patients Undergoing Hip Fracture Surgery

## The RAGA Randomized Trial

Ting Li, PhD<sup>1,2</sup>; Jun Li, PhD<sup>1</sup>; Liyong Yuan, MD<sup>3</sup>; [et al](#)

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*JAMA*. 2022;327(1):50-58. doi:10.1001/jama.2021.22647

Incidence of delirium lower than expected:

26% vs 5.1%-6.2%

7 day period

## Spinal Anesthesia or General Anesthesia for Hip Surgery in Older Adults

M.D. Neuman, R. Feng, J.L. Carson, L.J. Gaskins, D. Dillane, D.I. Sessler, F. Sieber, J. Magaziner, E.R. Marcantonio,  
S. Mehta, D. Menio, S. Ayad, T. St  
B. Sharma, S. Azim, R.A. Hymes,  
M. Giska, Y. Ranganath, T. Tedore,  
S. Kates, L.A. Fleisher, J. Dattilo, A. T

Randomized superior

Pragmatic

Previously ambulated

50 years of age or older

**Hip fracture**

Multicentre 46 U.S.

*Primary outcome:* c

approximately 3m i

60 days after randomization.

*Secondary outcomes:* death-60 days, delirium, time to

discharge, ambulation-60 days

Spinal anesthesia for hip-fracture surgery in older adults was not superior to general anesthesia with respect to survival and recovery of ambulation at 60 days. The incidence of postoperative delirium was similar with the two types of anesthesia.

The NEW ENGLAND  
JOURNAL of MEDICINE

ESTABLISHED IN 1812

NOVEMBER 25, 2021

VOL. 385 NO. 22

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Randomized superiority trial

Pragmatic

Previously ambulatory patients

50 years of age or older

**Hip fracture**

Multicentre 46 U.S. and Canadian hospitals.

*Primary outcome:* composite of death or an inability to walk approximately 3m independently or with a walker or cane at 60 days after randomization.

*Secondary outcomes:* death-60 days, delirium, time to discharge, ambulation-60 days

NEJM

Effort/ Size - 1600 patients/ Funding

Spinal Anaesthesia NOT superior to GA

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‘older age’ - 50 years of age or older

Exclusion: pxt difficulty ambulating independently

Frailty index

Composite outcome

- 34% vs 18%

- affected by other factors

- combining with ability to walk

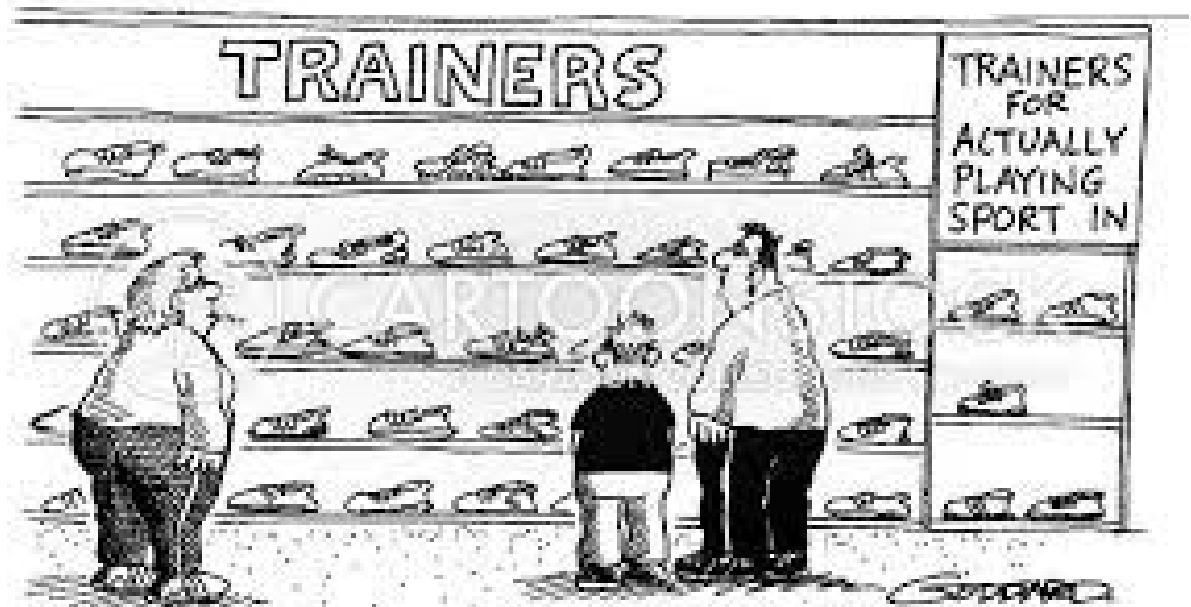
Sedation in the Spinal group –  
attenuated the benefit:

- missing info max depth sedation 25.7%

-14.1% of rest had sedation at a GA level

- 15% of entire spinal group → GA





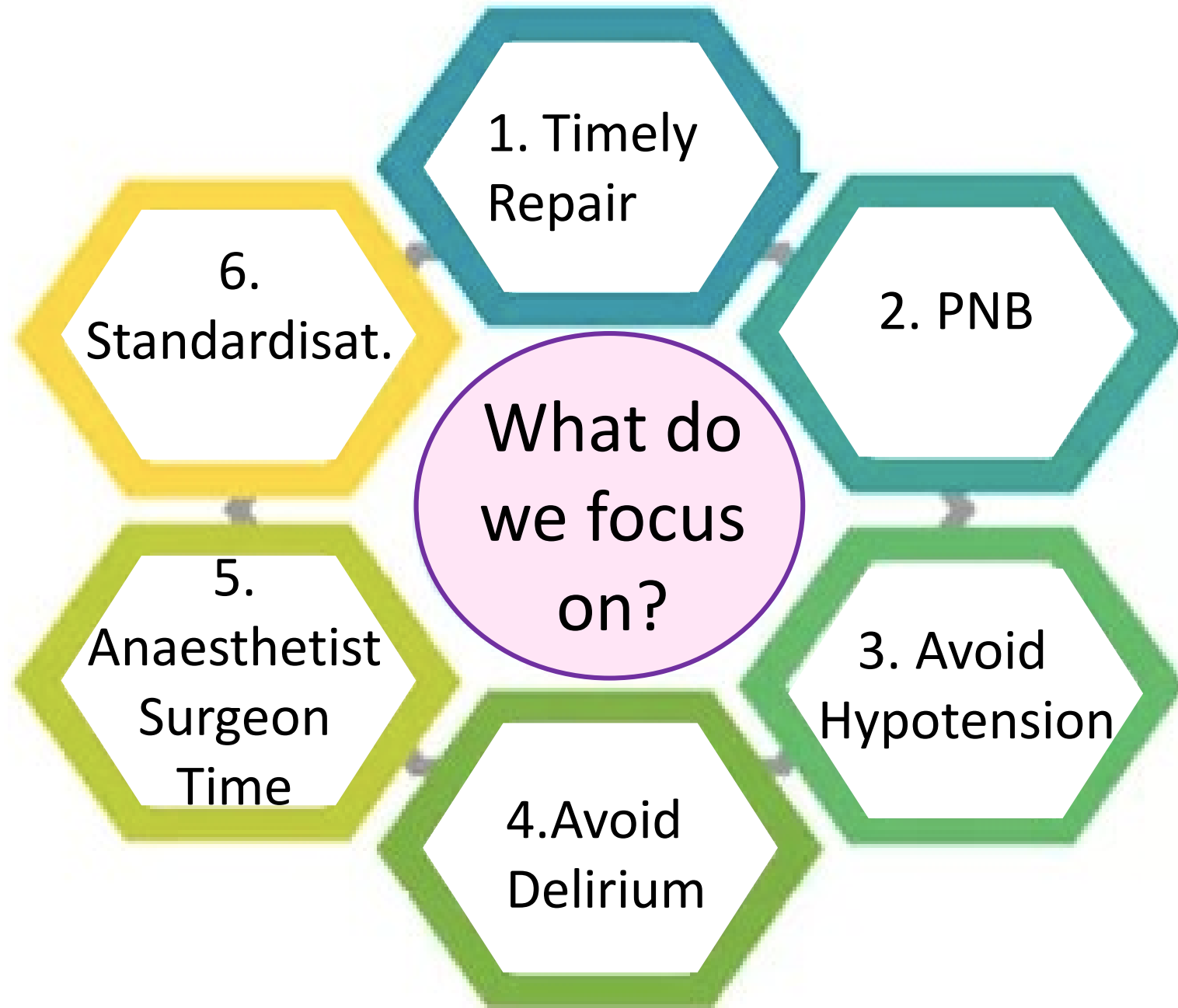
Pragmatic

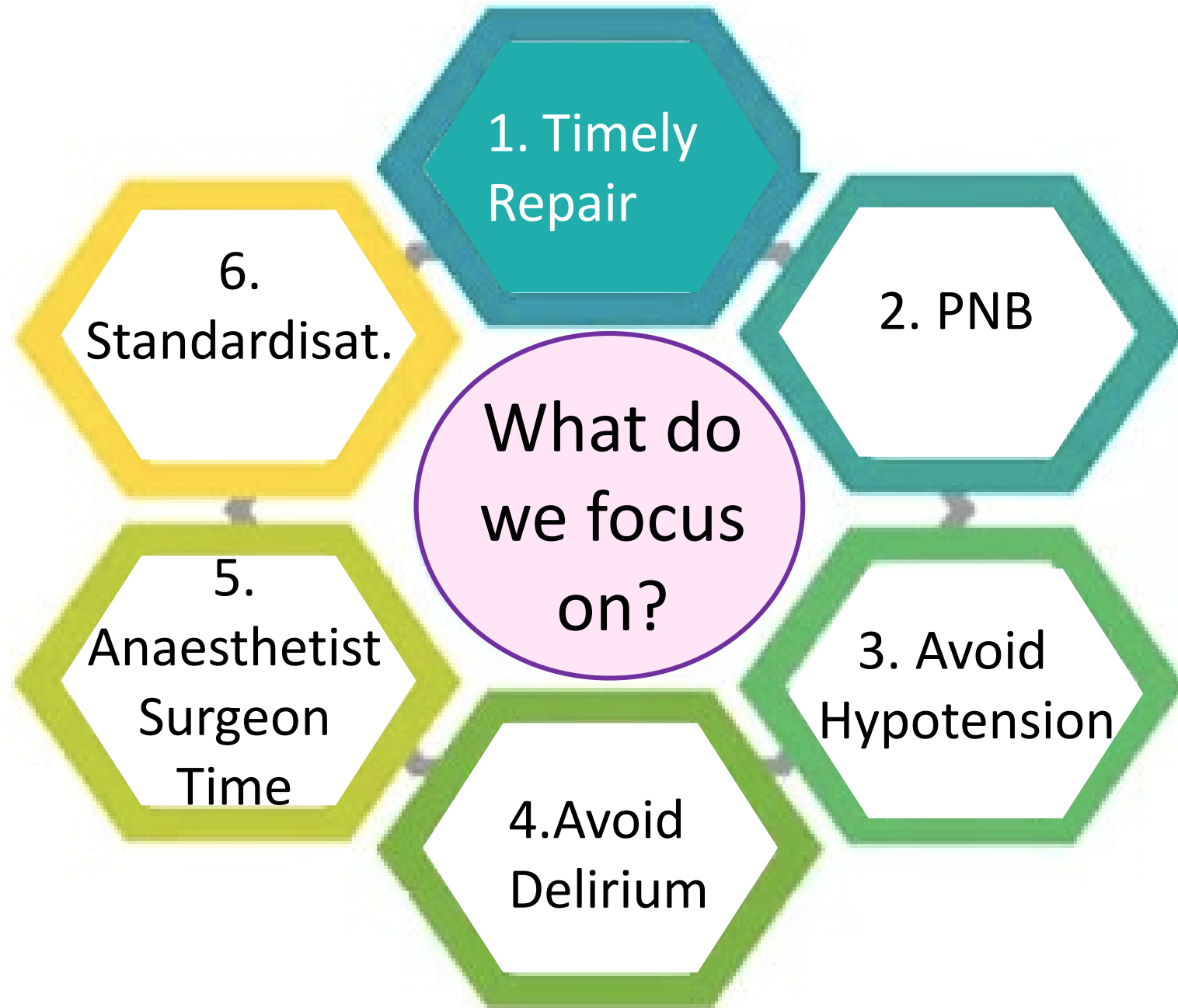
**Table 4. Exploratory Outcomes (Modified Intention-to-Treat Population).**

Outcome	Spinal Anesthesia (N=795)	General Anesthesia (N= 804)
Outcomes in the hospital		
Complications — no./total no. (%)		
Death	5/782 (0.6)	13/790 (1.6)
Myocardial infarction*	6/783 (0.8)	9/793 (1.1)
Nonfatal cardiac arrest	2/780 (0.3)	0/784
Stroke*	5/783 (0.6)	7/793 (0.9)
Pneumonia*	8/783 (1.0)	16/793 (2.0)
Pulmonary edema*	9/783 (1.1)	8/793 (1.0)
Pulmonary embolism*	4/783 (0.5)	5/793 (0.6)
Unplanned postoperative intubation	4/783 (0.5)	7/793 (0.9)
Acute kidney injury*	32/709 (4.5)	55/726 (7.6)
Surgical-site infection†	2/783 (0.3)	0/793
Urinary tract infection*	35/783 (4.5)	28/793 (3.5)
Postoperative transfusion	130/782 (16.6)	146/793 (18.4)
Any return to the operating room	10/783 (1.3)	14/793 (1.8)
Critical care admission	18/783 (2.3)	29/793 (3.7)
Fall within 12 hr after administration of anesthesia	1/783 (0.1)	1/793 (0.1)
Median time to first ambulation after surgery (IQR) — days‡	1.0 (1.0–2.0)	1.0 (1.0–2.0)









# 1. How early?

- After the second day - associated with significant risk of death and pressure sores.

*~ Moja J. A meta-analysis and meta-regression of over 190,000 patients. PLoS One 2012; 7:e46175*

- ANZ (UK NICE) - day of, or the day after presentation to hospital

- UK NHFD data – > 24hr delay - 9.4% ↑ 30 day mortality and 2x ↑ delirium

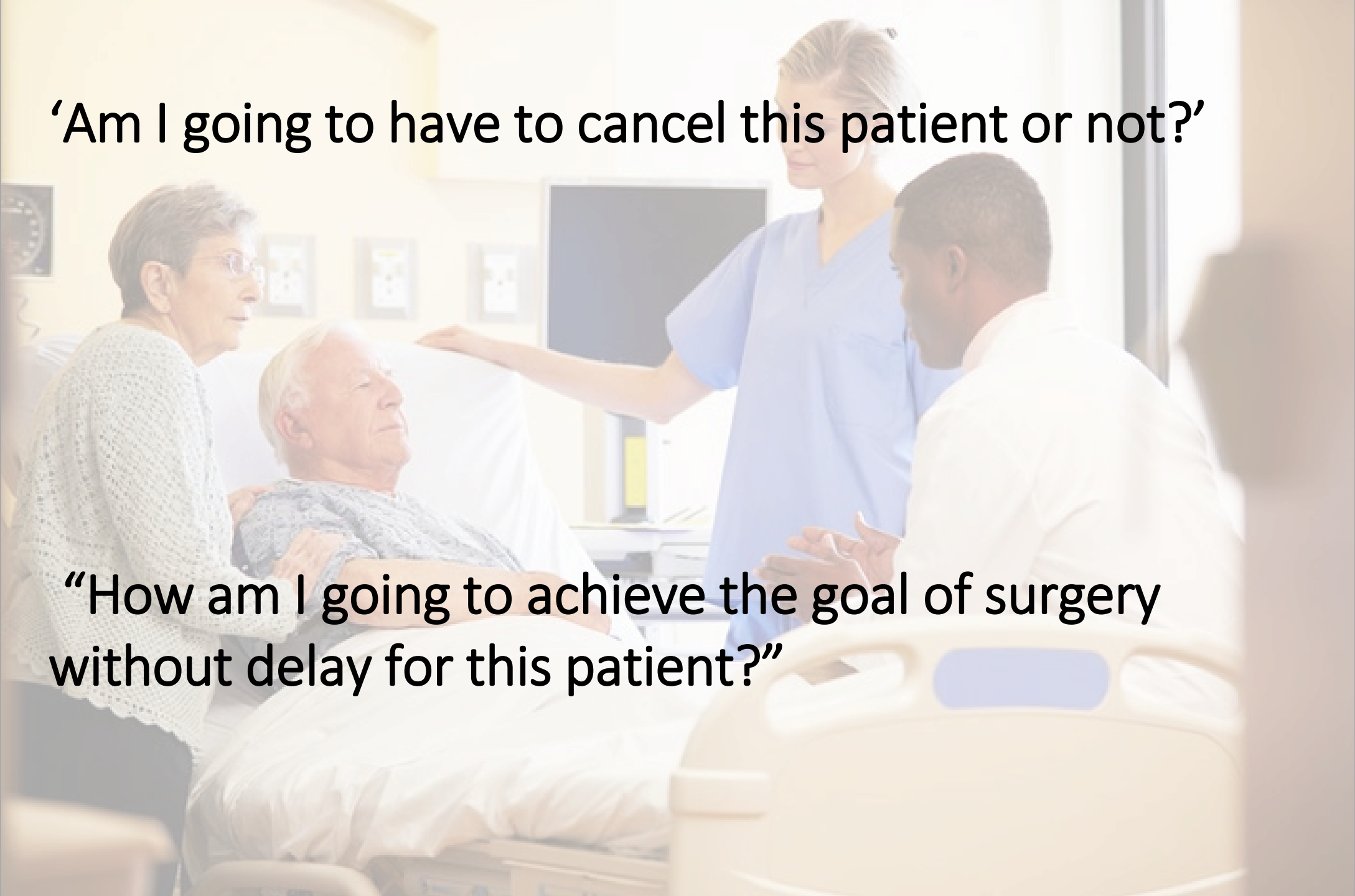
*~BJA Education, 20(5): 142e149 (2020)*

- HIP ATTACK: 6h vs 24h – delirium, time to mobilization and D/C were sig lower in the 6h group.

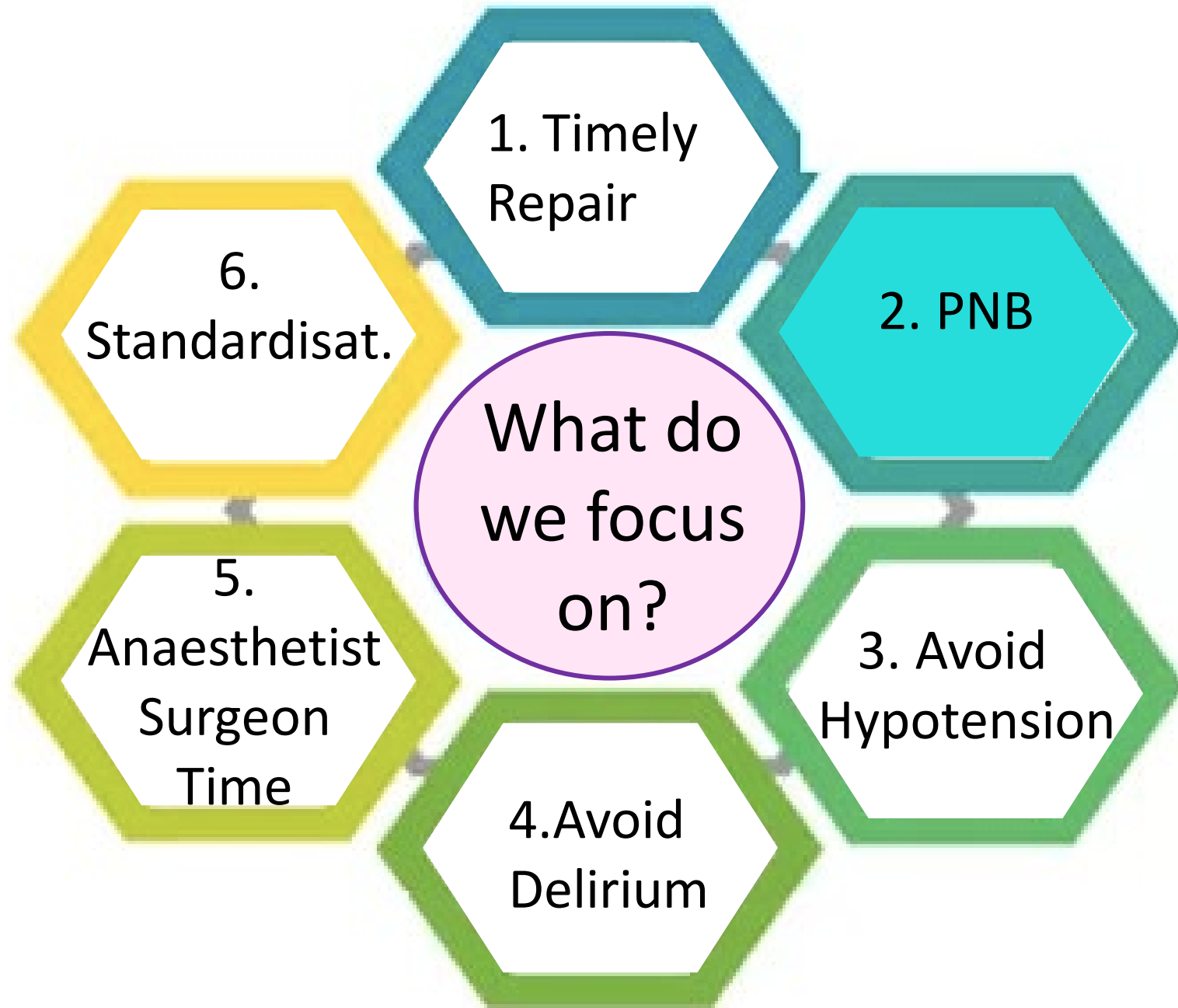
*~The Lancet Volume 395, Issue 10225, P698-708, February 29, 2020*

**‘Am I going to have to cancel this patient or not?’**

**“How am I going to achieve the goal of surgery without delay for this patient?”**







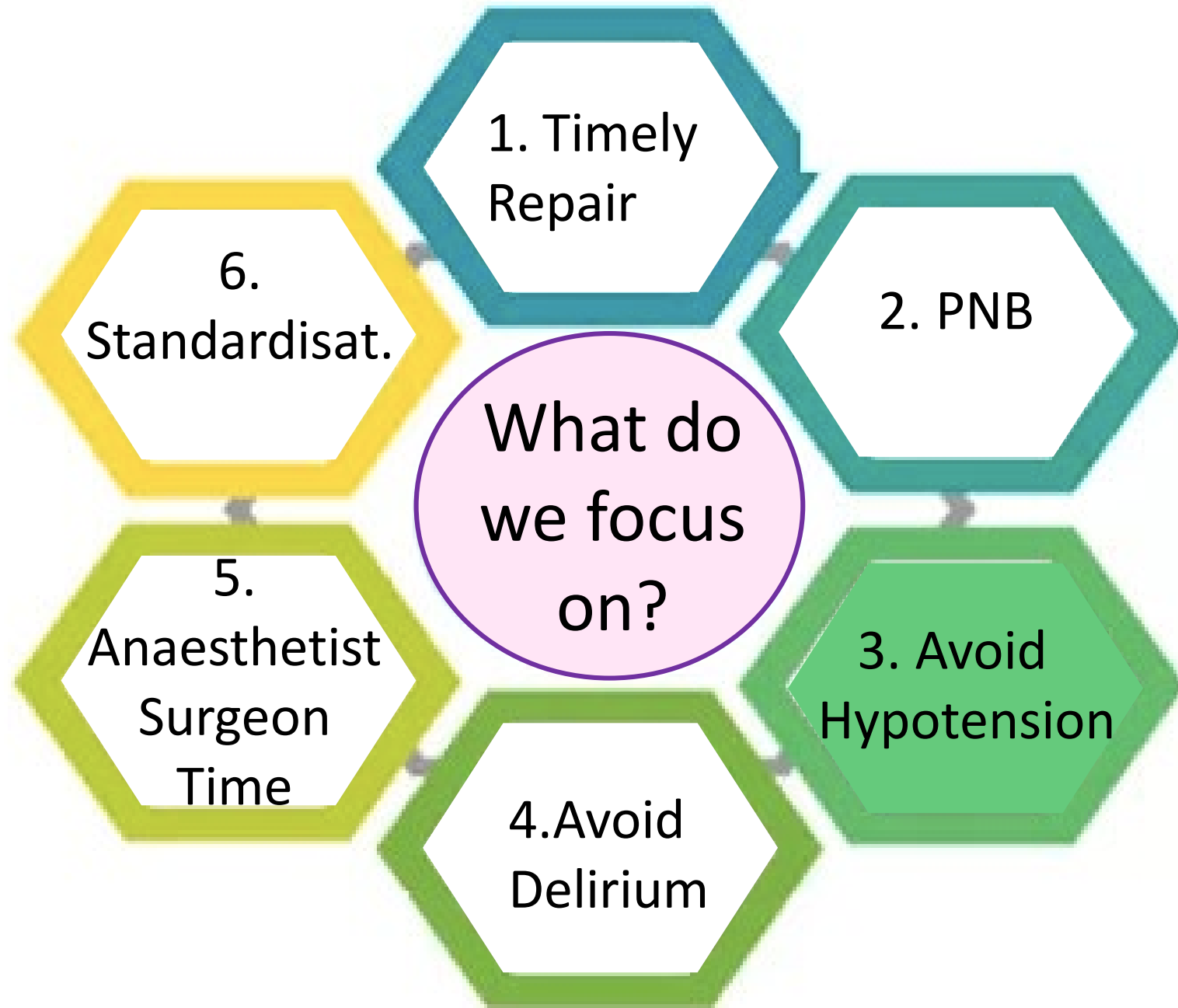
## 2. Peripheral Nerve Blocks

Positioning, perio-op pain, Femoral muscle spasm

ED first block – can be repeated if >6hr

NOT complete analgesia – need MULTIMODAL analgesia

NSAIDS and Opioids with caution in elderly



### 3. Avoid Hypotension

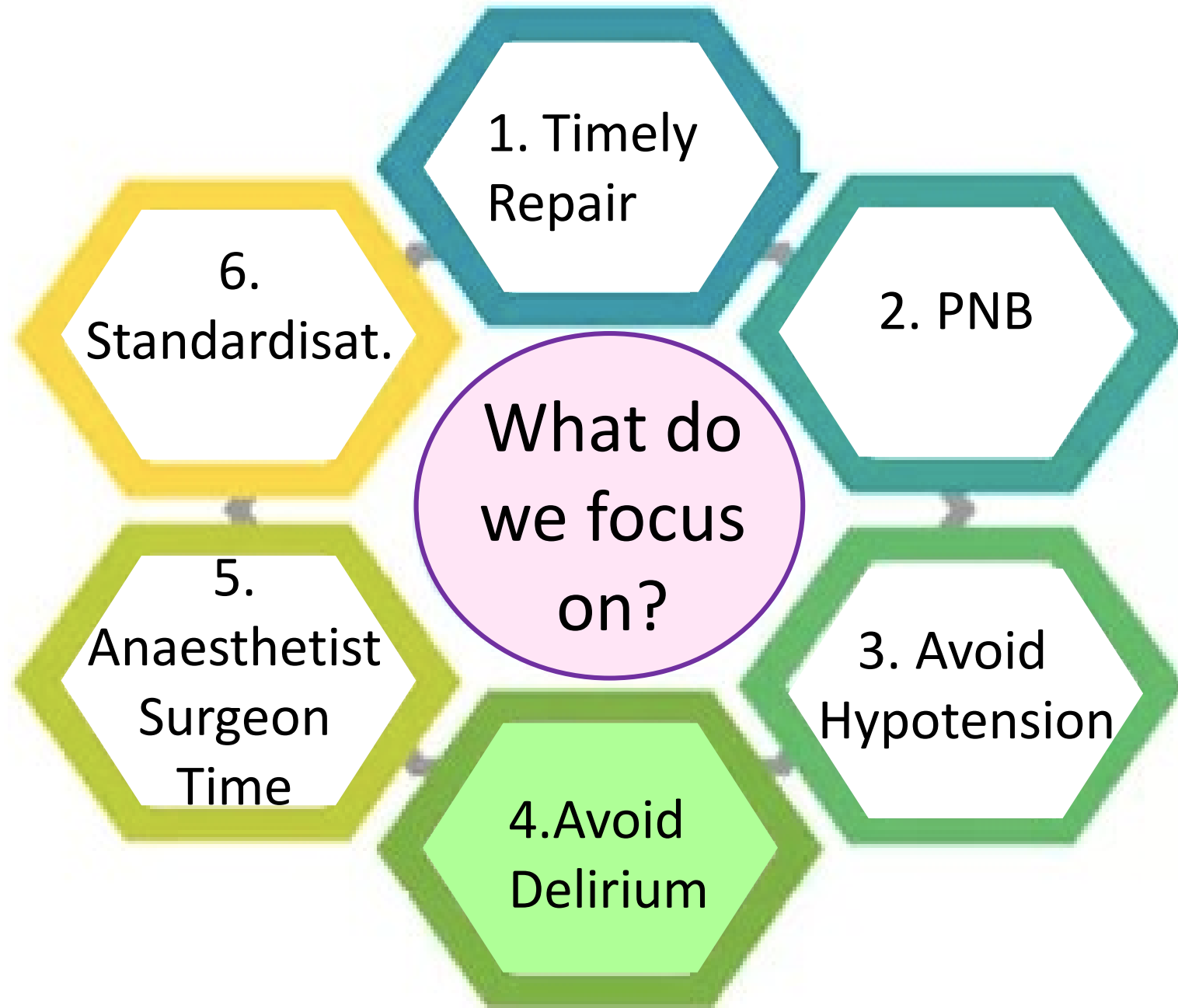
Sprint audit from the UK NHFD sig ↑ 5- 30 day mortality with low BP

Systematic review mortality risk rises with MAP<80mmHg for >10 min in orthopaed and non-orthopaed surg.

*~Wesselink EM et al Intraoperative hypotension and the risk of postoperative adverse outcomes: a systematic review. Br J Anaesth 2018; 121: 706e21*

Aim for:

- Lowest practical dose of anaesthetic (spinal/GA) – pxt age, renal fxn and other comorbidities
- Low threshold for invasive monitoring
- Proactively treat hypotension



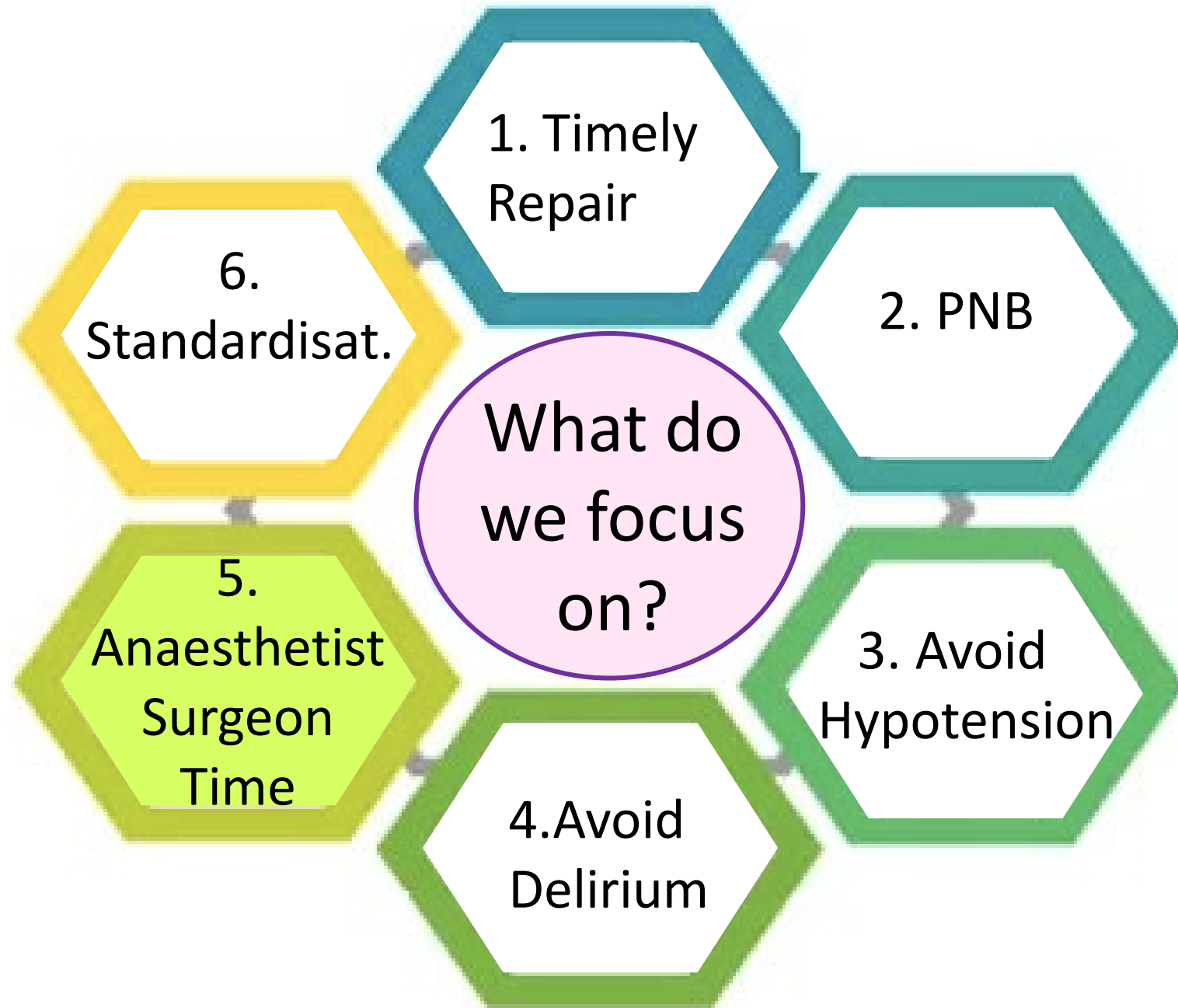
## 4. Avoid Delirium

Incidence around 25%, ↑ morbidity, ↑ mortality

Unpleasant experience, remembered by pxt

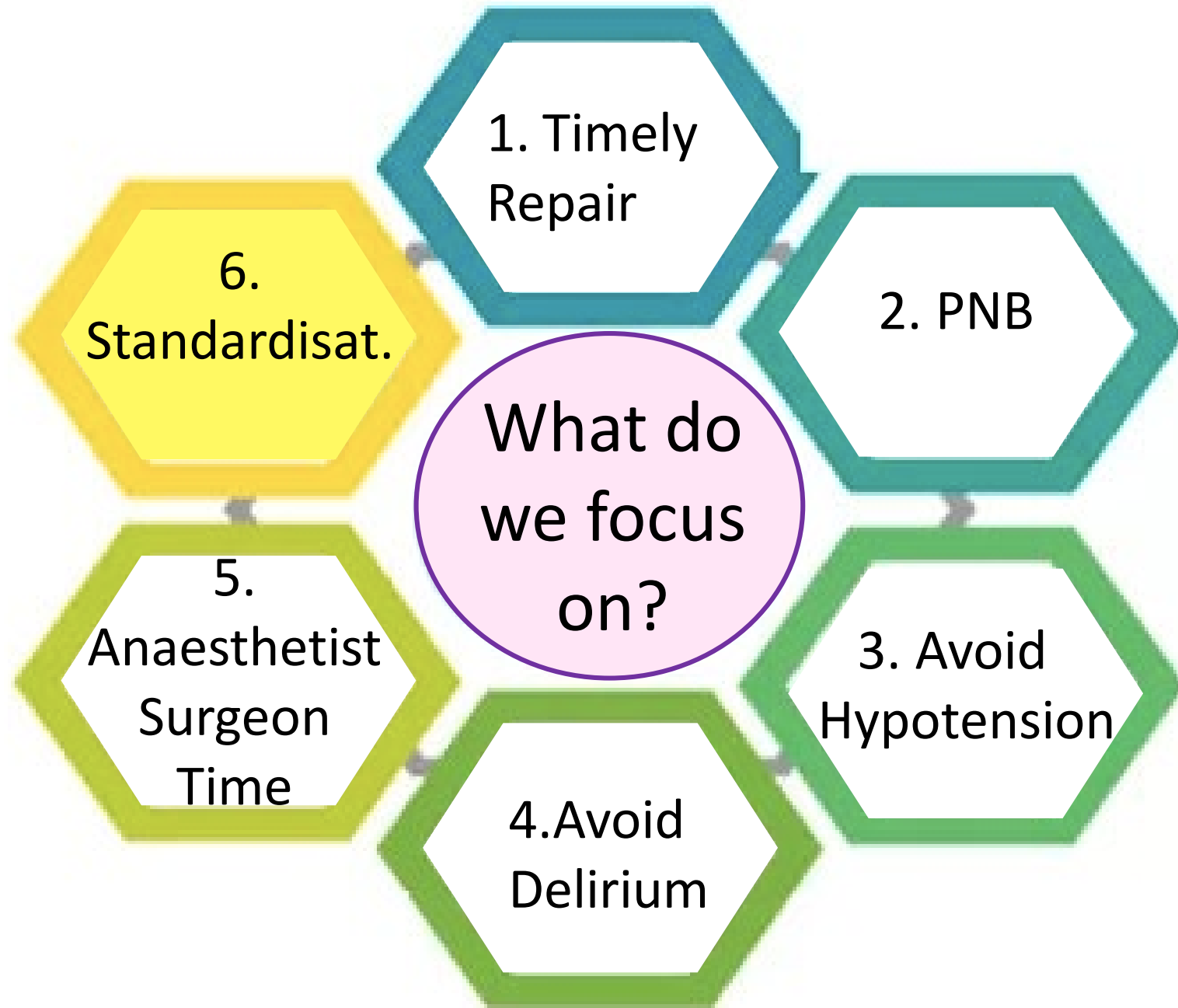
Challenge to treat → Focus on prevention:

- Timely surgery
- Avoidence of anticholinergics, benzodiazepines etc









# 6. Standardisation

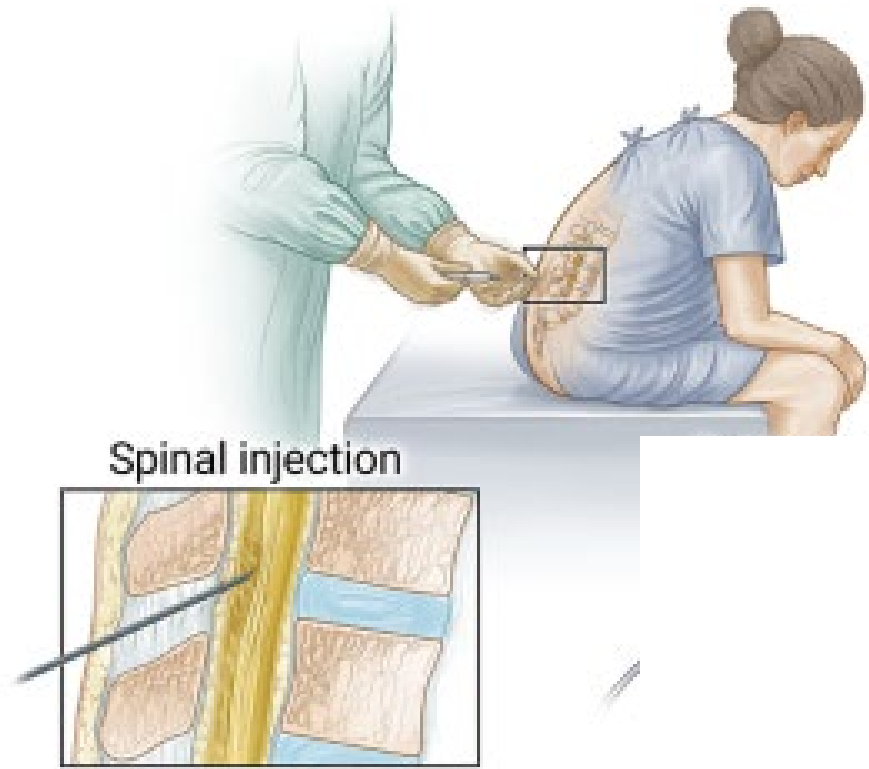
What anaesthetic? → How is it delivered?

Identify best practice within each type of anaesthesia

Agree – anaesthesia in a consistent manner to improve predictability and Mx of post op S/E or complication for post op care providers:

- Nurses
- Orthogeriatricians
- Physios
- OT

General Anaesthesia



# Spinal Anaesthesia

