

Imperial College
London

What surgeons can learn from polar explorers and fighter pilots

Roger Kneebone

Professor of Surgical Education & Engagement Science

Gresham Visiting Professor of Medical Education



Imperial College
London

Centre for Performance Science



Imperial College
London



Centre for Engagement & Simulation Science

Acknowledgements

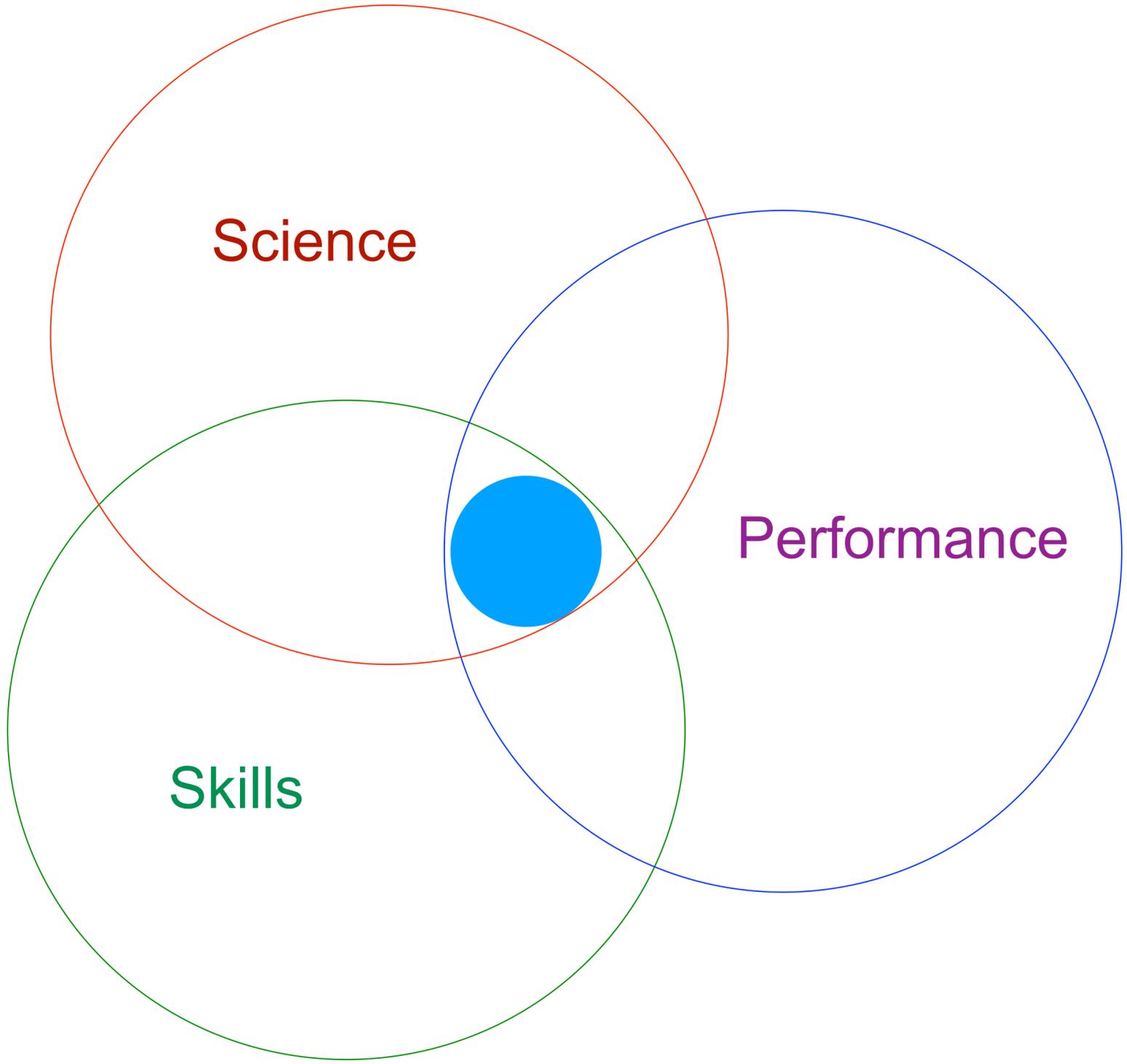
- Dougal Goodman
- Phil Bayman
- Chris Peters
- Petur Jonasson
- Terry Clark
- Aaron Williamon

***Countercurrent* podcast**

<http://apple.co/2n5ROy1>

Imperial College
London

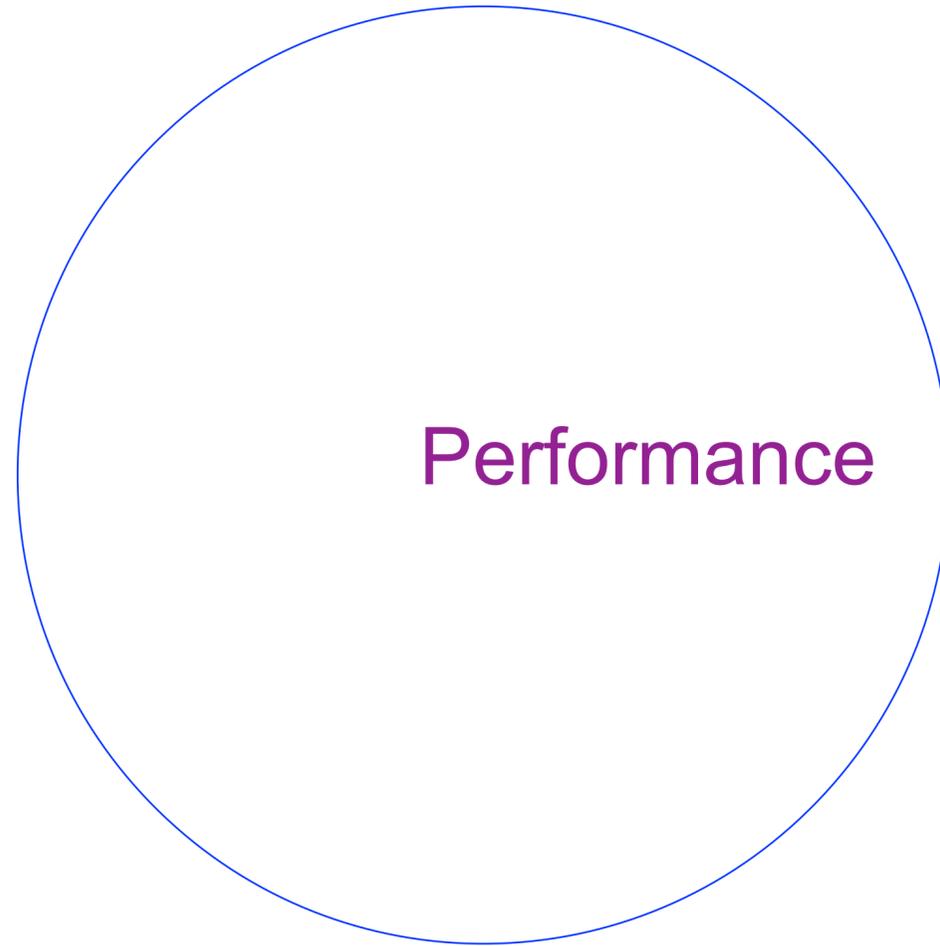
Performing medicine,
performing surgery



Science

Skills

Performance



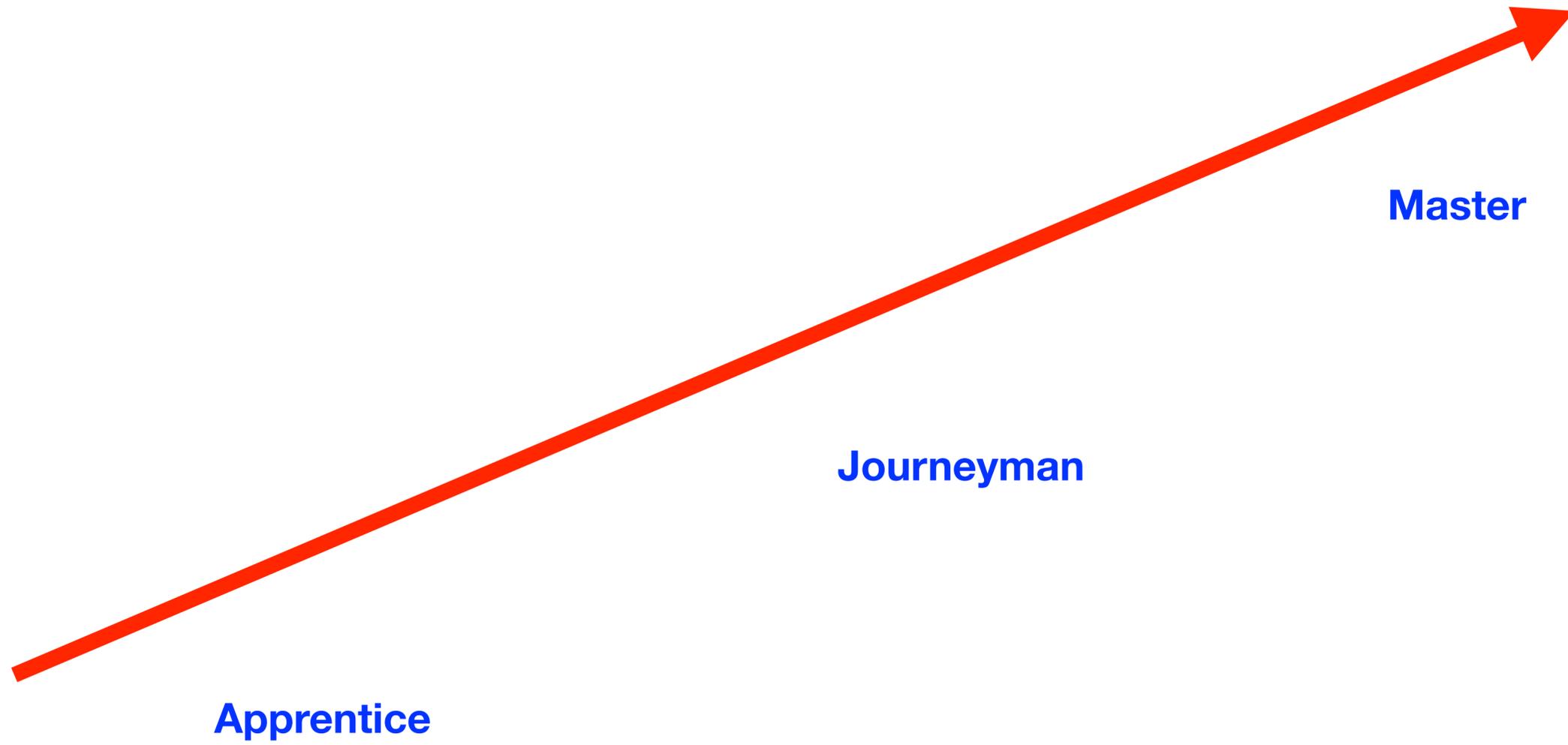
Expert

Understanding
the Path
to Mastery

**Roger
Kneebone**

'If you want to do anything
better, from surgery to
embroidery, you can learn
something from this book'
Christopher Peters,
Imperial College London





Apprentice

Journeyman

Master

APPRENTICE

JOURNEYMAN

MASTER

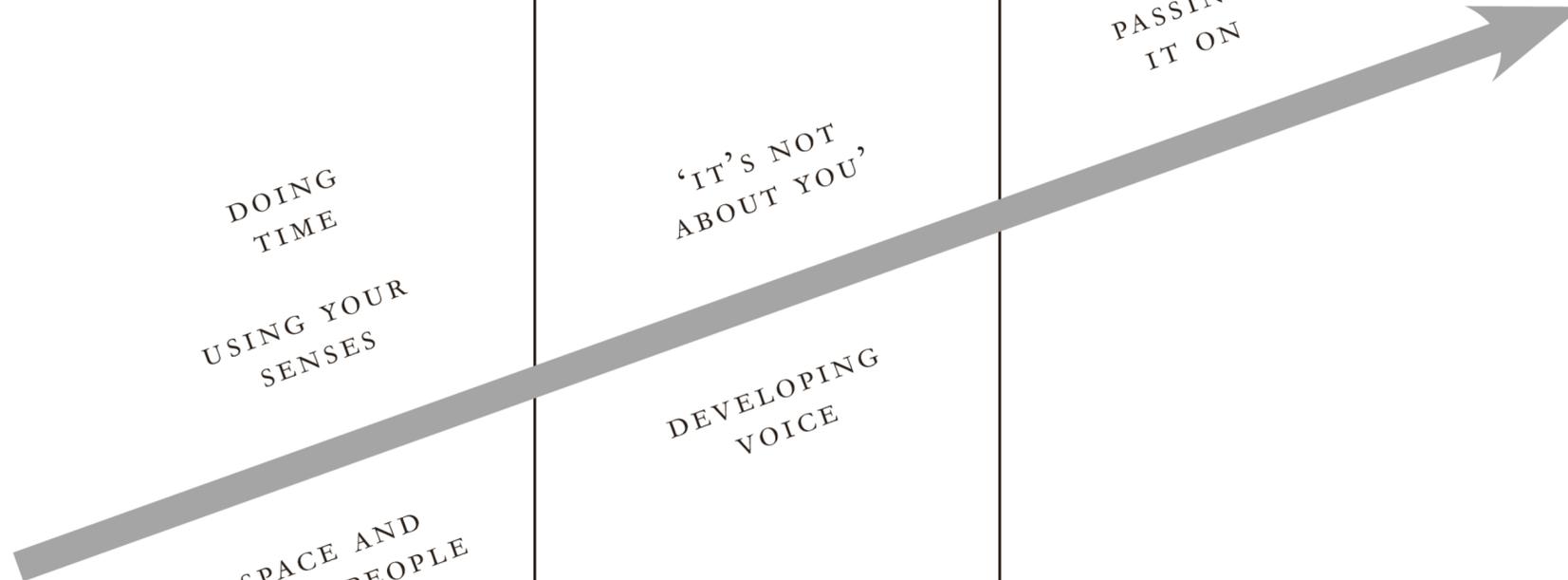
DOING
TIME
USING YOUR
SENSES

'IT'S NOT
ABOUT YOU'

PASSING
IT ON

SPACE AND
OTHER PEOPLE

DEVELOPING
VOICE











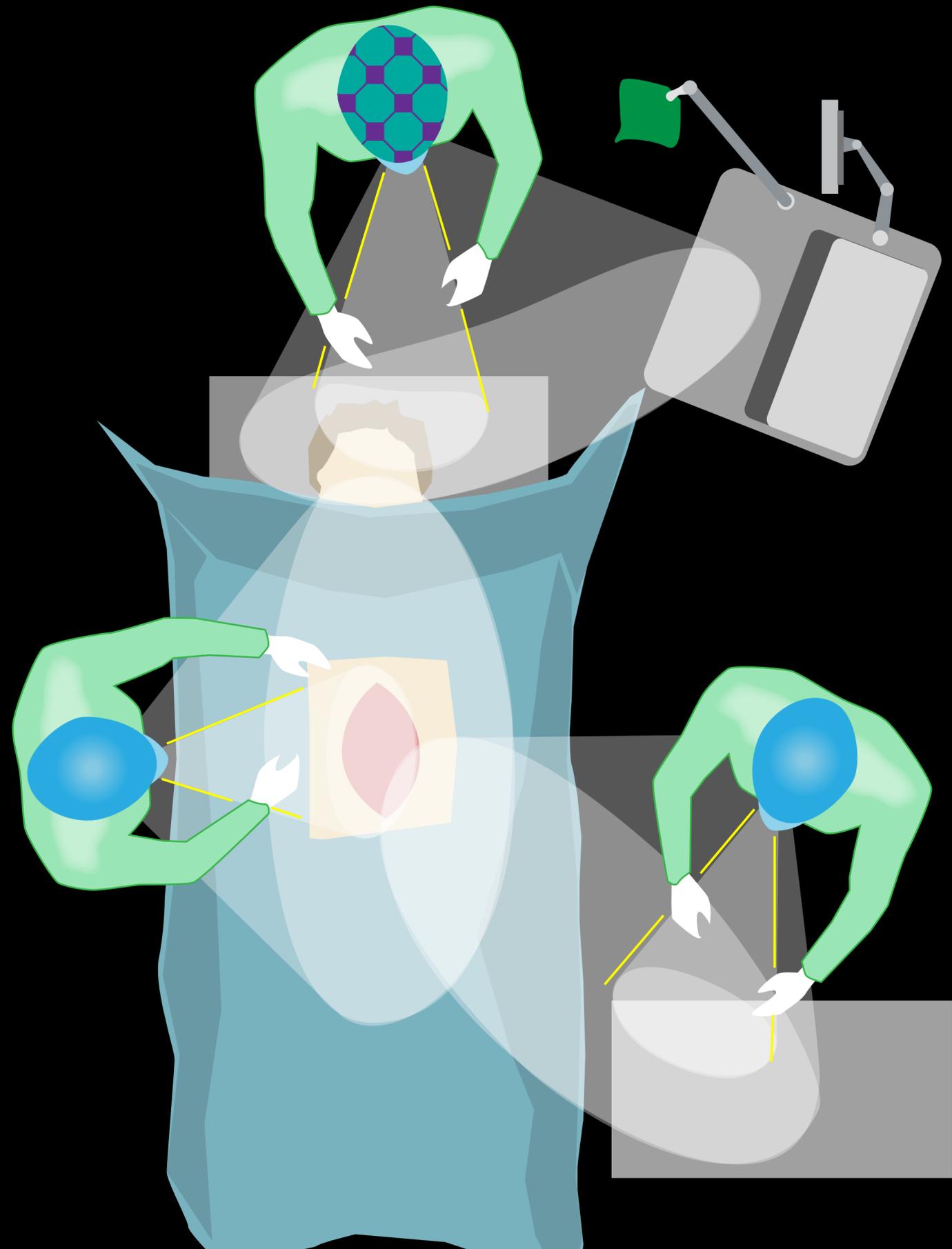


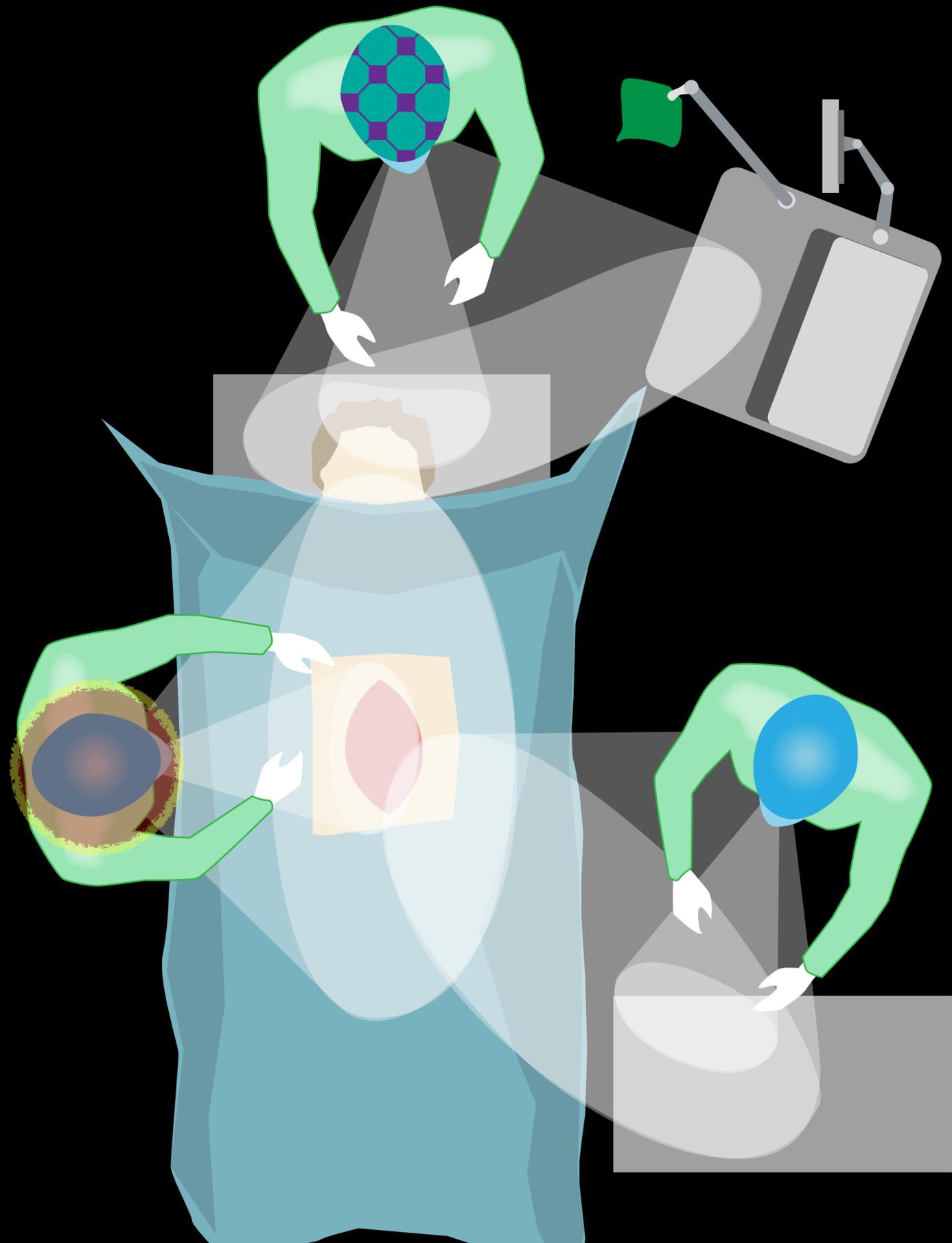


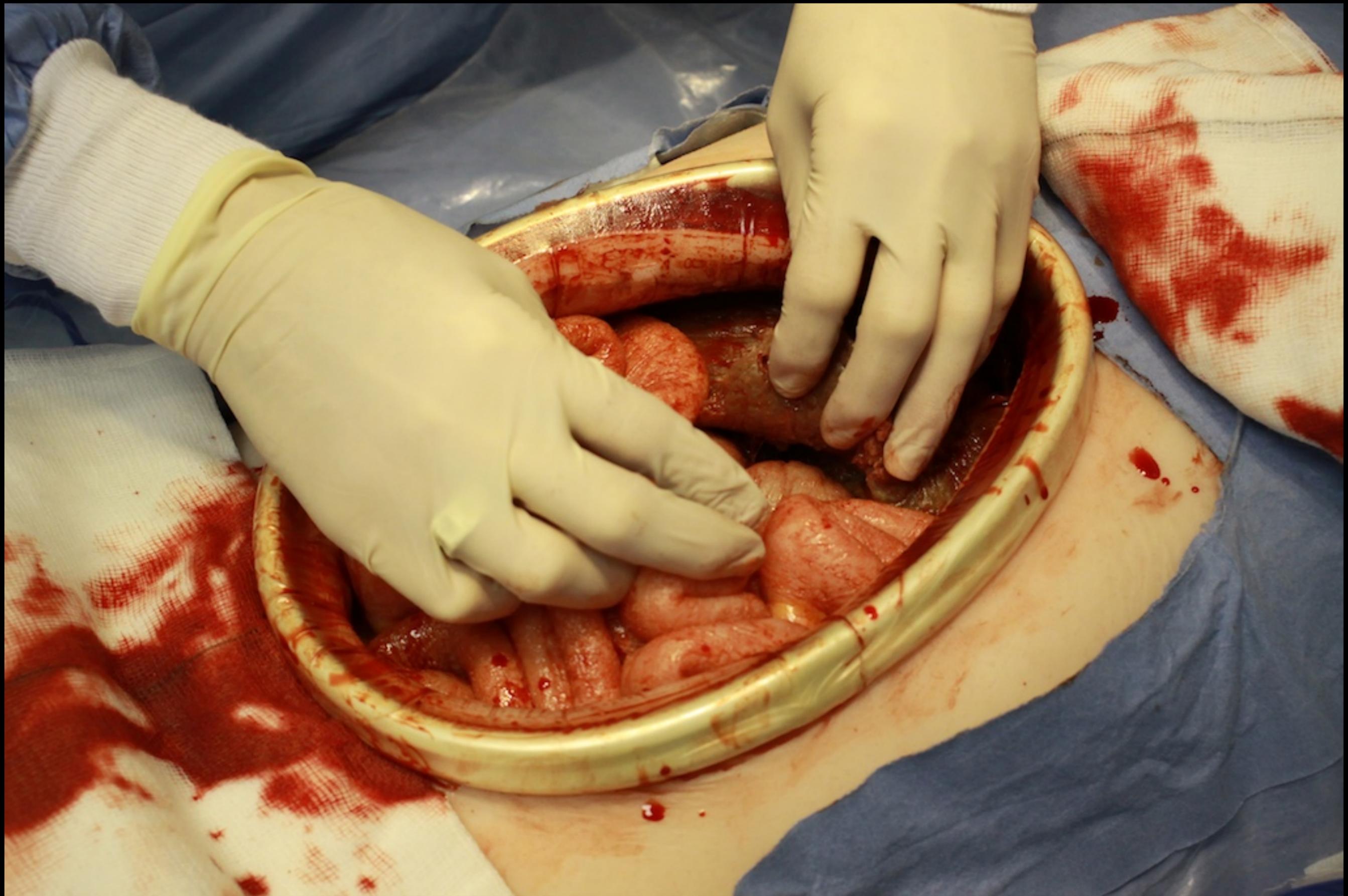
A close call

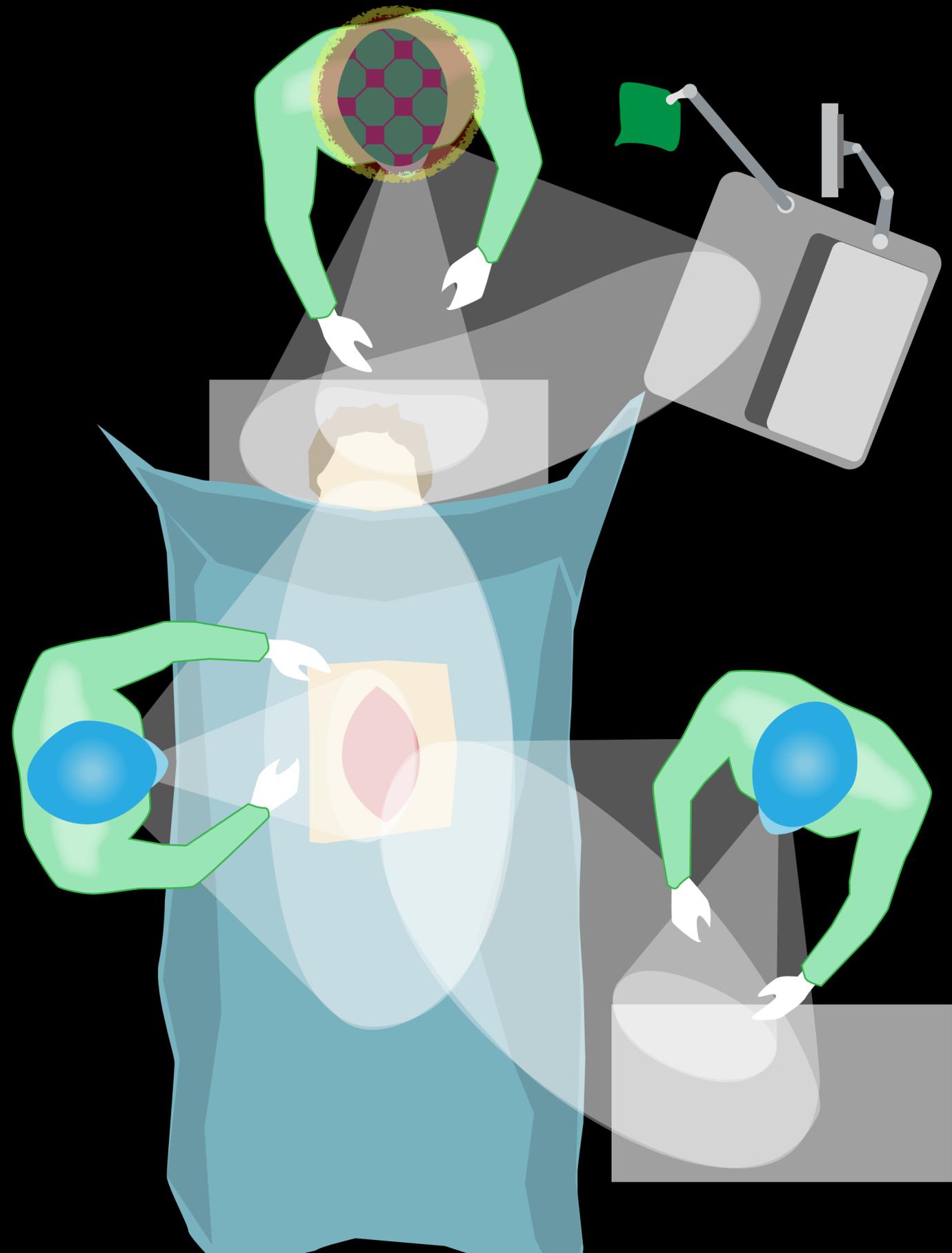


Beams of attention



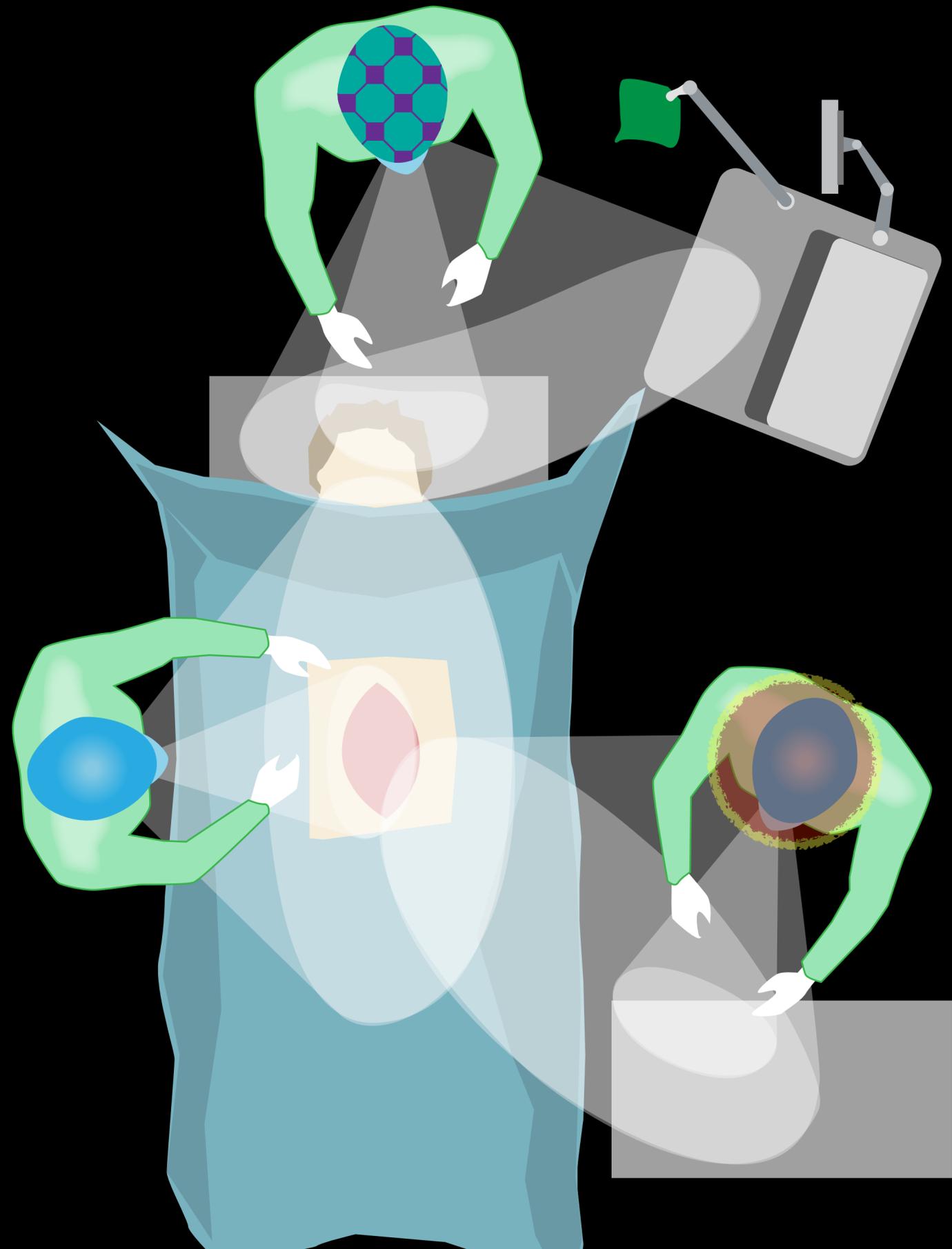














**Sharing perspectives
from outside medicine**

Risk, error, recovery and resilience

Introducing ...

Phil Bayman

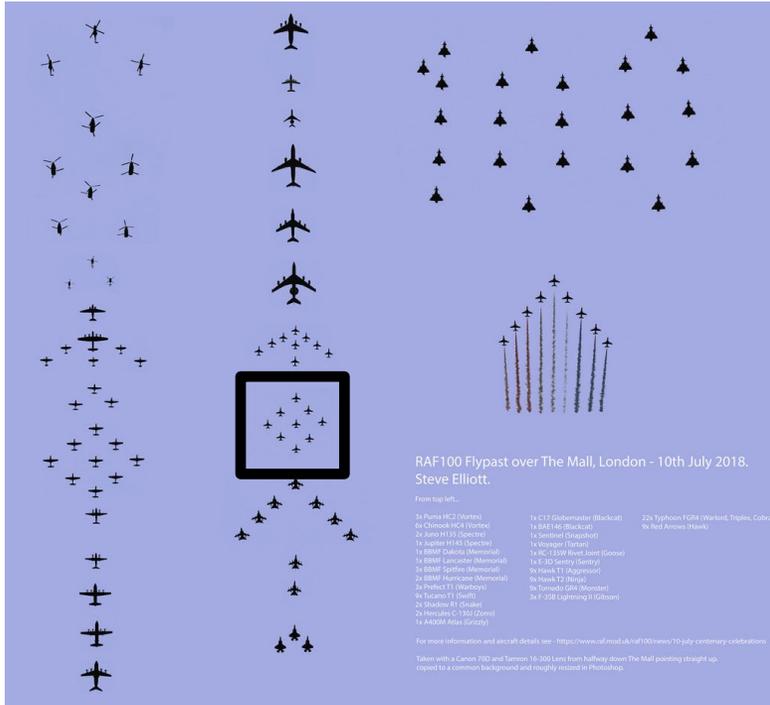


RAF & Royal Navy

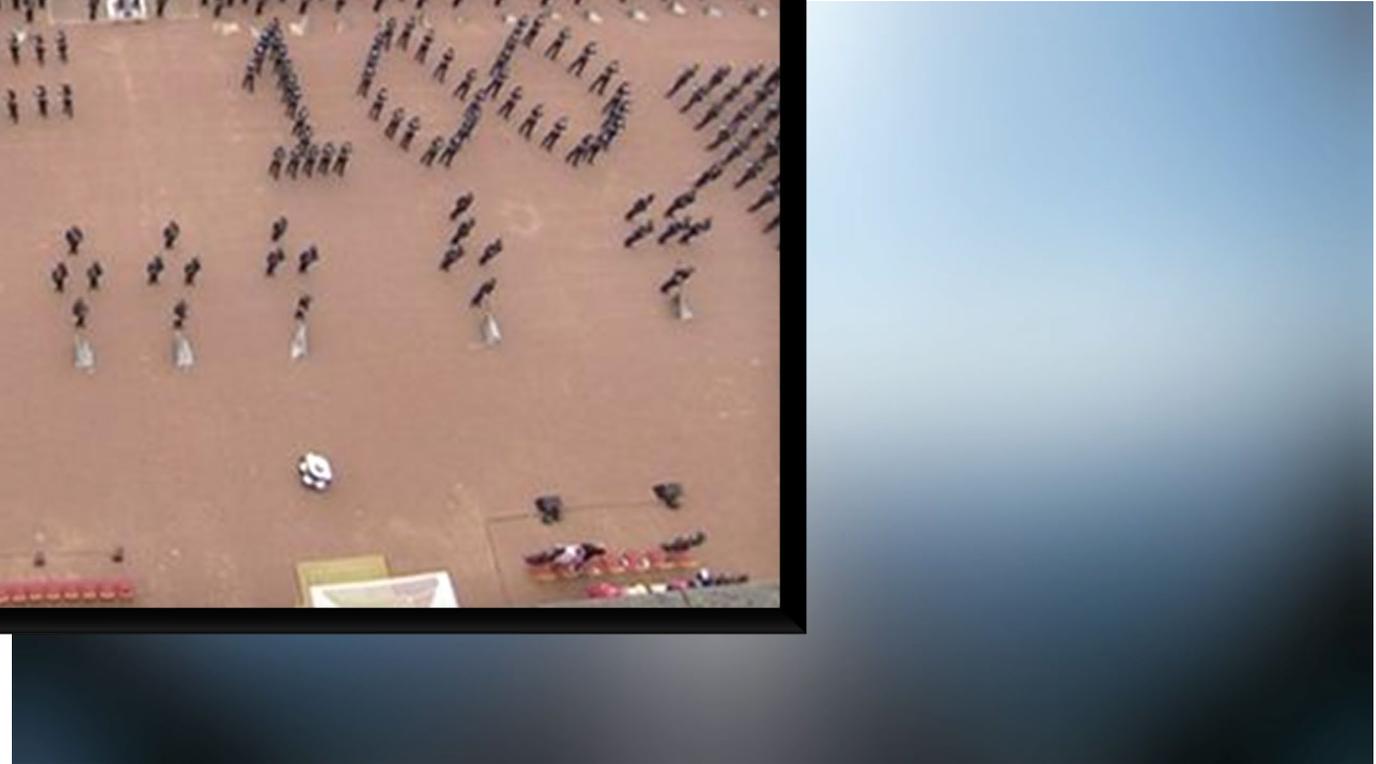
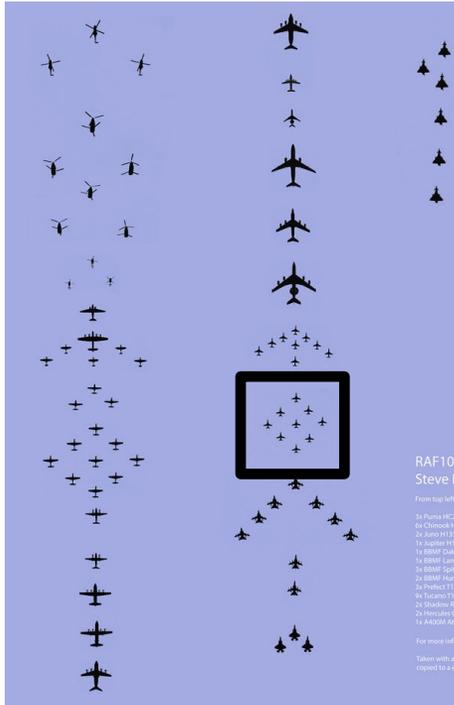
- Mainly Tornado & Hawk
- Fighter instructor
- Performance coach
- 4500 hours, 450 students



What its like ... RAF 100



What its like ... RAF 100



6th January, 2021
Presentation for Gresham College

What surgeons can learn from
polar explorers and fighter pilots

Response to a lecture by
Professor Roger Kneebone

Dr Dougal Goodman OBE FREng
Vice President
The Foundation for Science and Technology

dougal.goodman@gmail.com

Covid-19

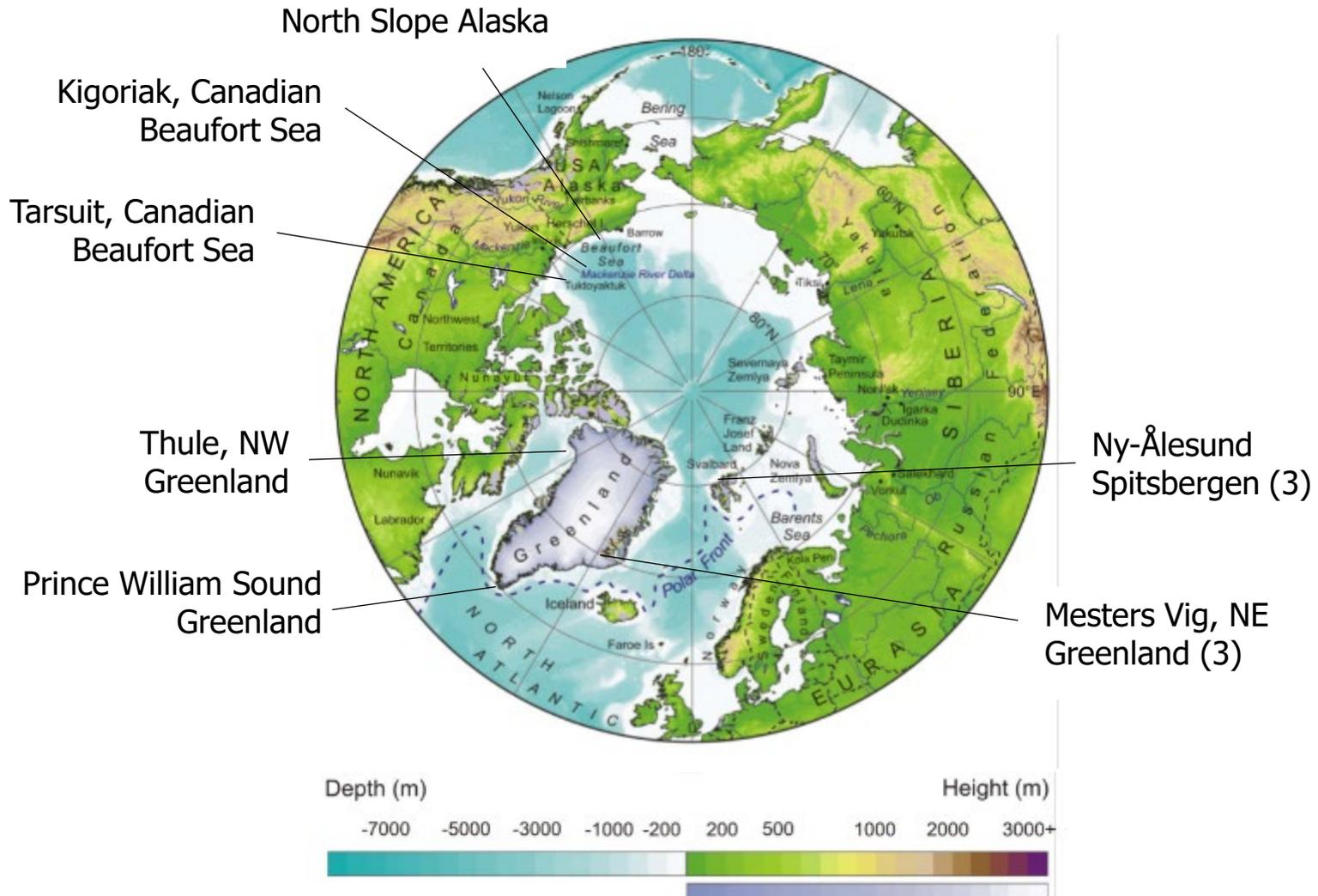
Stay at home

Protect the NHS

Save lives

Assess the risk

Arctic Expeditions and Visits





Antarctic Expeditions and Visits

BAS on South Georgia and South Orkney Islands

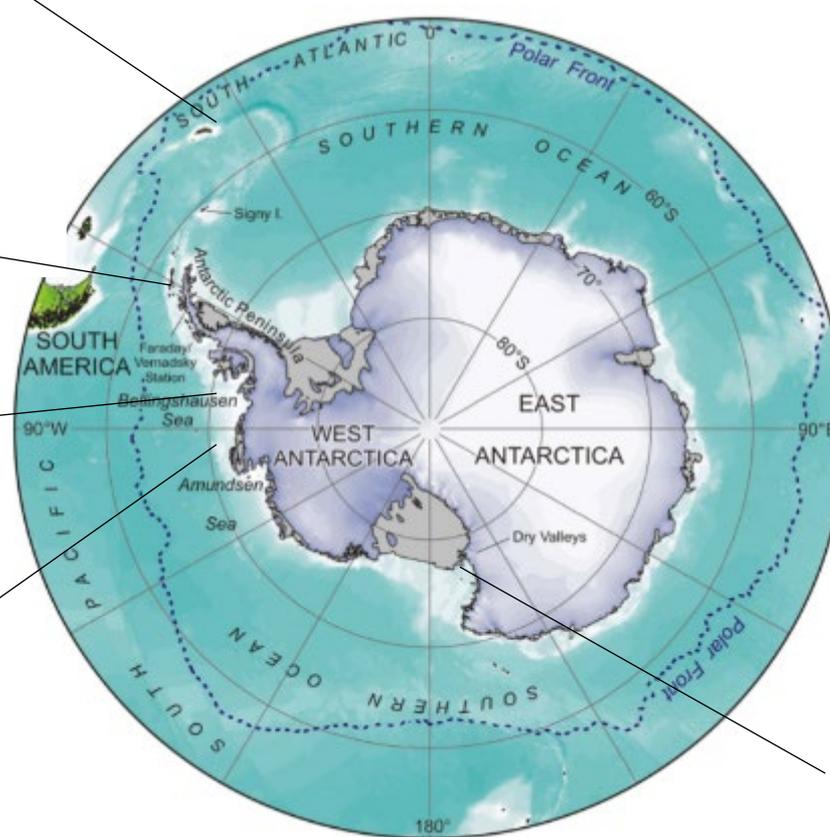
KEP, Bird Island
Signy Island

BAS Bases

Rothera,
Fossil Bluff
Sky Blue
Halley

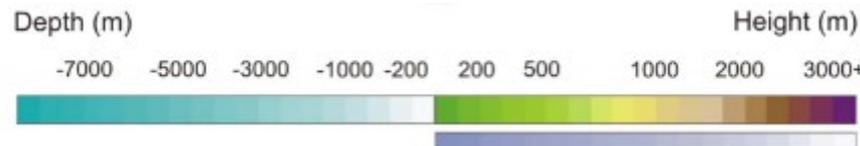
Voyage on Fram

Weddell Sea
Antarctic Circle



US Antarctic Research Programme

McMurdo Sound
Erebus Glacier
Tongue







U.S. AIR FORCE

9396

60th MA



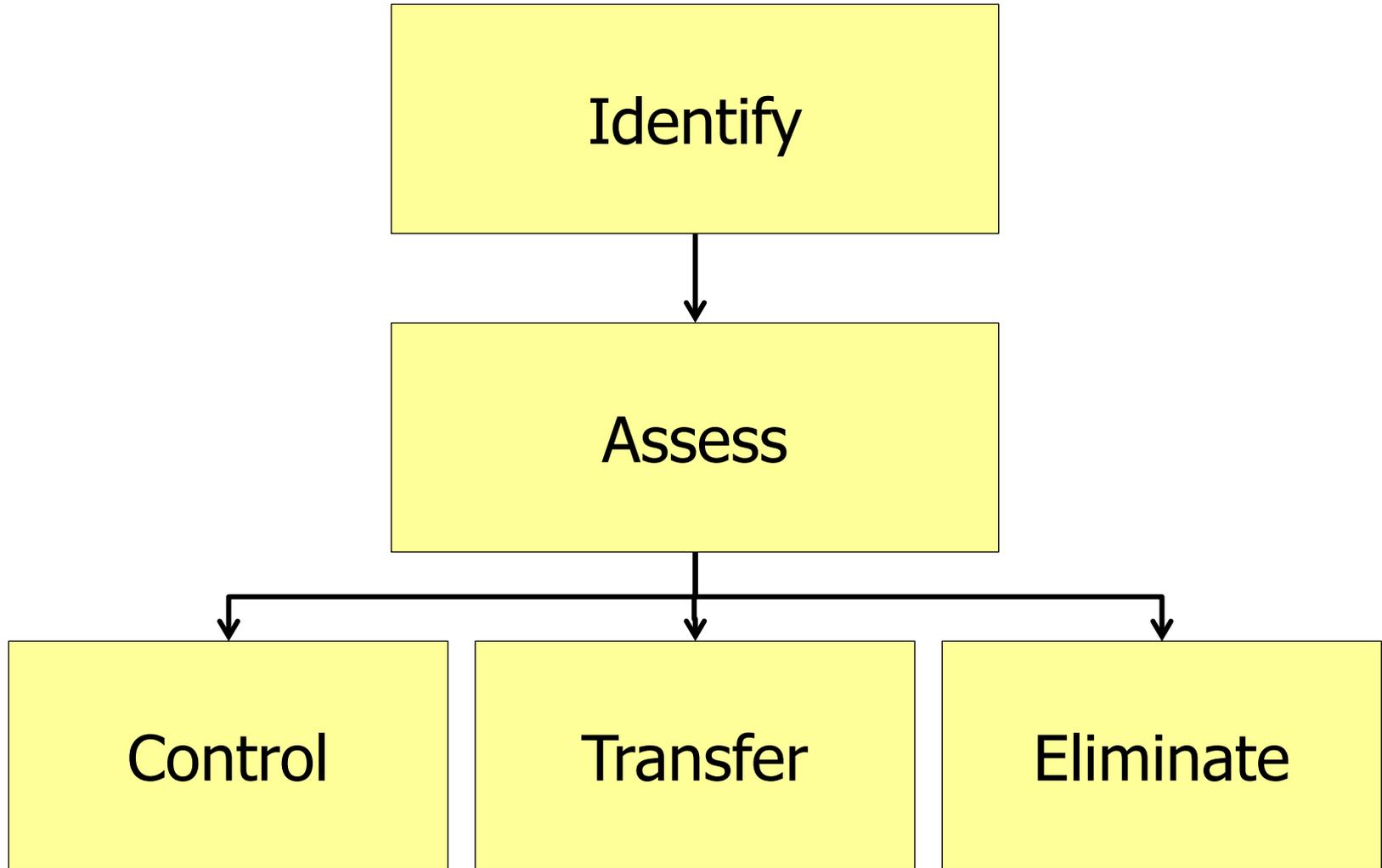
Victory awaits him who has everything in order — luck, people call it. Defeat is certain for him who has neglected to take the necessary precautions in time; this is called bad luck.

— from *The South Pole*, by Roald Amundsen

For scientific leadership, give me Scott; for swift and efficient travel, Amundsen; but when you are in a hopeless situation, when there seems to be no way out, get on your knees and pray for Shackleton.

— Sir Raymond Priestley

Fundamentals of Risk Management



What is an acceptable risk?

A senior management
decision

As Low As Reasonably Practicable
(ALARP)

Risk = Consequences * Vulnerability * Likelihood

Role of Standards and Regulations - so far as is reasonably practicable
("SFAIRP")

Comparing Notes

Surgeons

Training
Special skills
Simulation
Team dynamics
Hospital rules and regulations
Professional conduct
Liability issues
Hippocratic Oath – do no harm
Take measured risks
Learn lessons
Peer review
Performance statistics
Check lists

Explorers

Training and fitness
Special skills
Scenario analysis
Look after each other
Risk assessments
Improvise, innovate, adapt
Kit – clothes, cooking, travel, tent
Learn lessons from near misses and accident reports
Discuss plans with others
Track record
Communication
Check lists