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Can the local emergency medical response after a terrorist attack in Norway inspire colleagues in the Netherlands?

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This is the farm where I live with my family, one hour by car north of Oslo, in a typical Norwegian landscape

This is my background:

- **15 Years with anaesthesia and nursing**
- **15 years with quality improvement work and study**
  - 2007-2008 Master program of quality improvement and statistics at The Dartmouth Institute, Dartmouth Medical School, NH, USA
  - 2013-2017 PhD program at The Institute of Health and Society, Faculty of Medicine, University of Oslo, Norway,
  - I am going to defend my thesis in January

564 youngsters attending the summer camp 2011 for youth delegates of the Norwegian Social Democratic Party were targeted by a mass murder in police uniform, **killing 69 of the victims.**
65 of the 494 survivors were injured, 33 by gunshots.
All survivors, and the involved families have been in desperate need for psychosocial support.

Foto: Frode Johansen Ring Blad


*Brandrud et al BMJ Qual Saf 2017
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Maria Bergli,[1] Eugene Nelson,[15] Tamara S Morgan,[15] Per Hjortdahl[16]
Me and my two research teams were curious about the reasons for the success of the local EMS responding to the horrible terrorist attack at Utøya

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The local medical response to the Utøya massacre was evaluated to be a success by

1. **The Norwegian Directorate of Health, March 2012**
   - Lereim I, Prietz R, Strand M, Kinkenberg E, Ellefsen M, Misvær G, Nore V. et.al. Learning for better emergency preparedness: The medical response to the terrorist incident of 22 uly 2011. The Norwegian Directorate of Health report (NO. IS-1984), March 2012.
     Available on:
     https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/365/Learning-for-better-emergency-preparedness-the-medical-response-to-the-terrorist-incidents-of-22-July-2011-IS-1984E.pdf

2. **The Norwegian Government's 22-Juli-Commission, August 2012**
   - Gjørv A.B, Auglend R.L, Bokhari, L, Enger E.S, Gerkman S, Hagen T, Hansen H.B. et al The 22 July-commissions' report. (NOU No.2012:14) Oslo, Norwegian Government Security and Service Organisation, August 2012. Available in Norwegian on:
     https://www.regjeringen.no/no/dokumenter/nou-2012-14/id697260/

3. **The Swedish Disaster Medicine Study Organization, December 2012**
   - KAMEDO: The bomb attack in Oslo and the Shootings at Utøya 2011. Report 97. Published by The Swedish National board of Health and Welfare, December 2012. Available on www.socialstyrelsen.se.

The evaluators highlighted the

1. ***Survival*.** That all 35 Utøya victims brought to the local hospital Ringerike survived, despite their planned capacity being exceeded already after 40 minutes.
2. ***Good emergency preparedness*** with extra personnel meeting every patient with a complete, well-educated trauma team

The evaluated success

3. ***Good psychosocial support*** of the victims and their families. This was crucial because *"part of the purpose behind a terrorist attack is to inflict serious, unexpected causalities in order to create fear to achieve political goals".*
4. ***Continually providing patient lists*** to the police. The commission recommended a clarifying of the law to support other health professionals to do the same in similar situations.
5. ***A recommended "Sister Hospital" model*** for other hospitals assisting the trauma center in the future.

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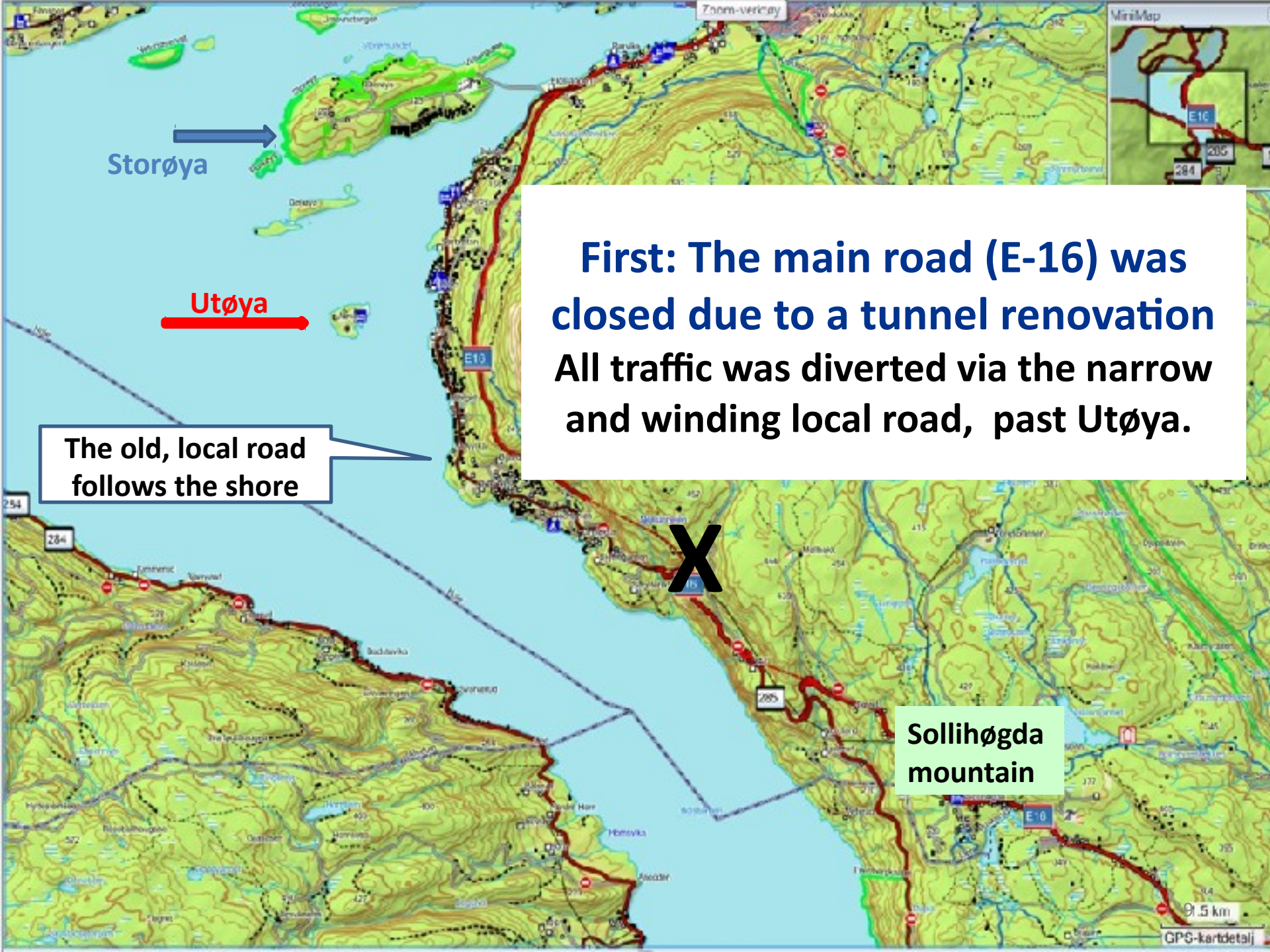
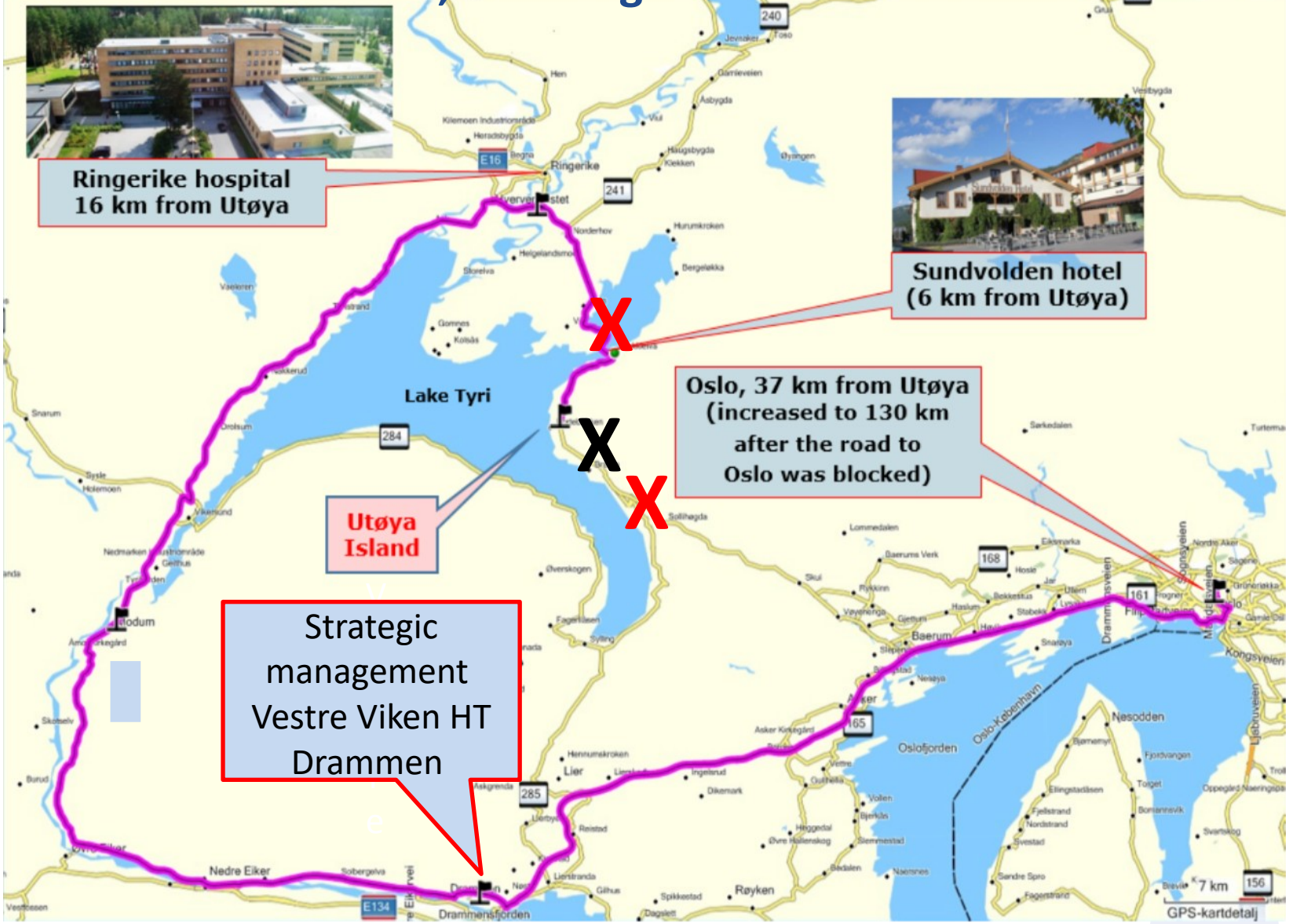
We were also curious about why as much as 35 of the 55 victims triaged to hospital were brought to the local hospital, and only 12 to the Trauma Centre in Oslo 37 km away from Utøya


Storøya
Utøya
First: The main road (E-16) was closed due to a tunnel renovation
All traffic was diverted via the narrow and winding local road, past Utøya.
The old, local road follows the shore
X
Sollihøgda mountain

Second: The road was blocked by the police at Sollihøgda and the ambulance personnel at Sundvolden because of the traffic situation and a possible bomb in the terrorists parked car.

Some ambulances were gradually able to drive past the barriers, but the traffic congestion made the road too difficult to use, and Ringerike became the best choice.



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Finally:

Going north to Ringerike was also the safest choice for the air ambulance, partly because of a limited flight following function towards Oslo

"Three helicopters landed about the same time with severely injured patients, two landed on the hospital's helipad (meant for one) and the third in front of the main entrance, making the doors open, and the papers fly into the air."

Foto Colin Poole

The Ambulance staff knew Ringerike has been a well prepared trauma hospital with monthly team-training since 2003

Foto: Ringerike hospital

VV Ringerike is a level III hospital serving a population of 80 000, 118 beds, 24 h general surgery an orthopaedic service to stabilize trauma patients before transfer to a trauma centre, 6 operating theatres, 12 intensive care beds, and affiliated psychiatric services.

Foto: Vestre Viken Internmagasin?

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The multiprofessional trauma team

- Headed by the surgical resident-on-call, the trauma team has 10-13 members

The *prehospital* emergency service is organized with on-call GP's and paramedic staffed ambulances, and paramedic & physician staffed air ambulance helicopters situated 20 minutes flying time away

Photo Frode Johansen RingBlad

34 patients were brought to Ringerike within 104 minutes (+ one arriving later)

- **14 patients with a total of 28 gunshot wounds**,
  - 8 with torso injuries
  - 3 with head injuries (two gunshot and one blunt)
  - 10 with a total of 16 injuries in their extremities
  - **7 were transferred to the Trauma centre in Oslo when that was safe**
  - **5 were critically injured (ISS>15)**
- **14 patients with injures from their escape**
  - Fractures, cuts, wounds, sprains and tension injuries
- **7 patients with other health problems**
  - Hypothermia, respiratory problems etc

Waage & Poole et al 2013

(Poole, was the trauma surgeon serving as dual commander)

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Based on the external evaluation:
How are the professionals involved in the trauma care network from Utøya to discharge from Ringerike hospital explaining the success?

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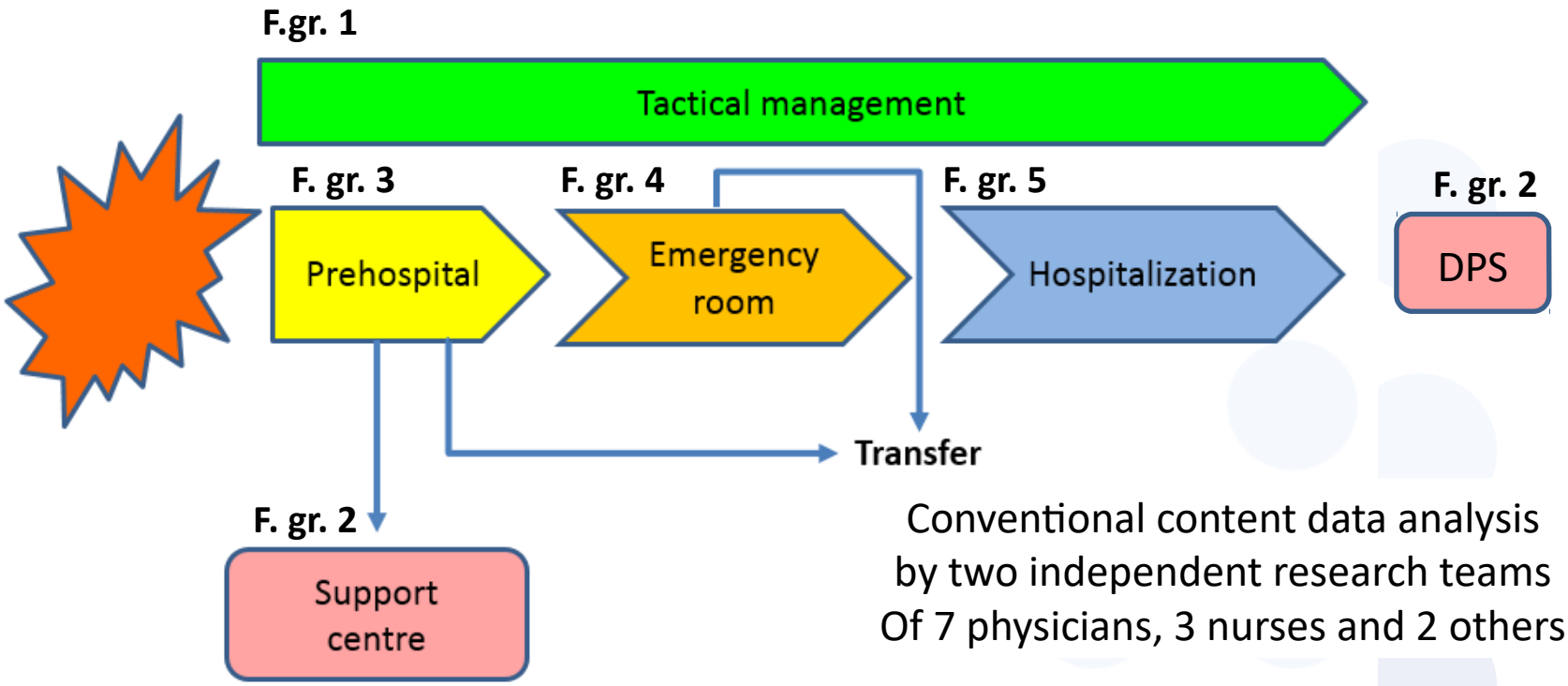
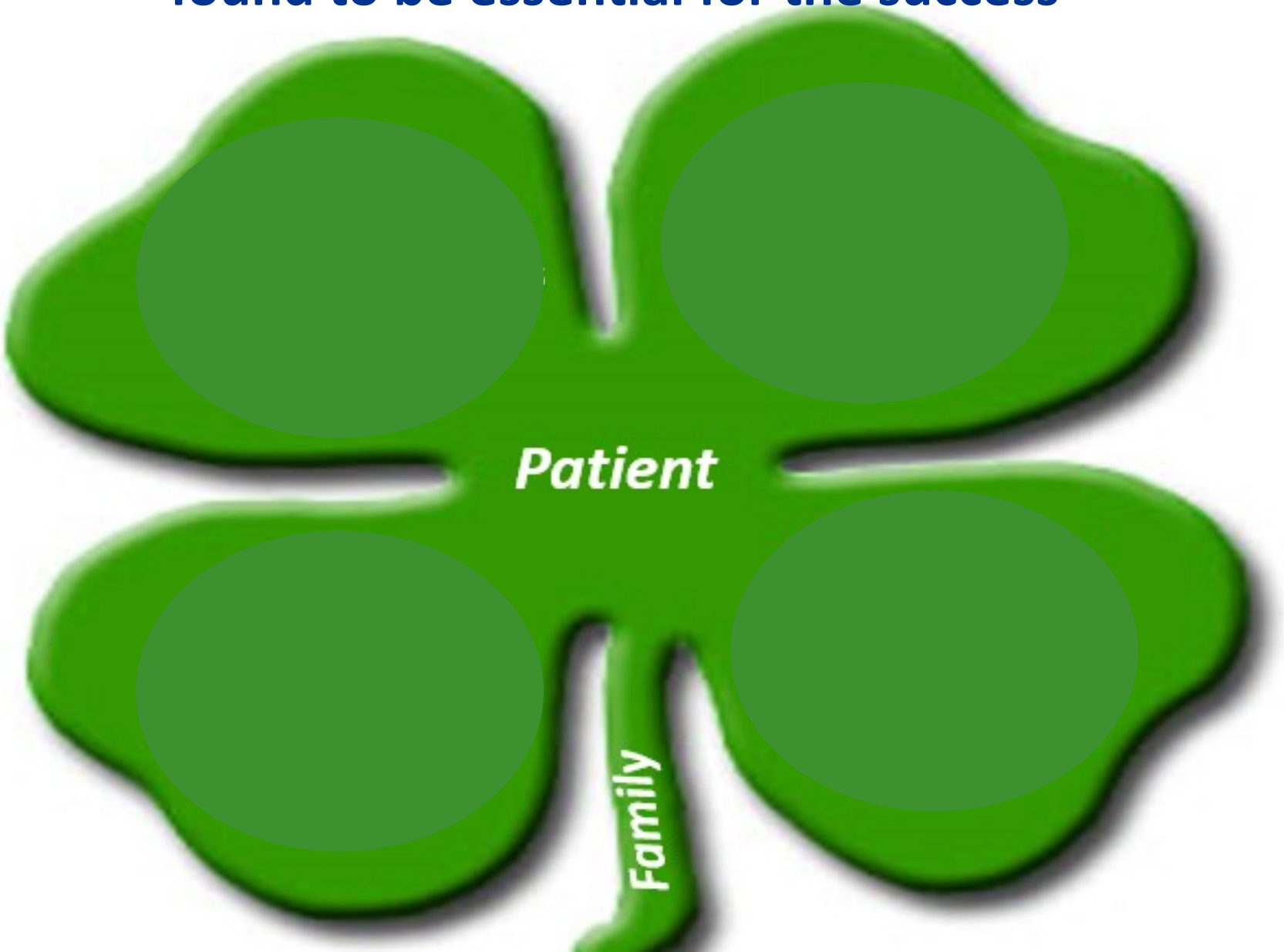
Focusing on the system, what did you experience as strengths and weaknesses of the service in action on July 22-24?

- Five focus groups, each group covering their part of the care network
- Data collection method: The critical incident technique (CIT)
- 5 Single interviews with those unable to attend their focus group
- Additional key person interviews



Conventional content data analysis
by two independent research teams
Of 7 physicians, 3 nurses and 2 others

The key *combination of elements* found to be essential for the success



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Networks more resilient than chains

The whole is more than the sum of its parts

Better & Systematic Trauma Care (BEST)

Purpose: Every acute care hospital should be able to undertake the initial treatment of trauma patients, despite well-developed air ambulance and trauma centers at university hospitals.

1	2	3	4	5	6
1996 Chance system: Trauma center focus: Huge variations in the trauma treatment between and within hospitals	**Knowledge & ED skills: ATLS®** (Advanced trauma Life Support) **TNCC** (Trauma Nurse Care Course), etc. Local training	**Multi-professional team training** Working **together, learning** together, **training** together. In the hospitals own ER	**Inter-professional commu-nication & leadership** **CRM** Crew Resource Management training Common rules	**2006 BEST Training** & initial trauma treatment at **49/50 Norwegian ED hospitals**	**BEST Multi-professional** facilitator Courses. & **Courses in** Hemostatic emergency surgery. The entire team is participating in the course.

Continual improvement

Meaning driven innovation

What went wrong?

- **The capacity was inadequate to serve the press and the enormous amount of family members searching for their child.**
- To compensate for this limitation, the mental care clinic across the yard served as a *Family support centre*, where also the less injured from the outpatient clinic were taken care of.

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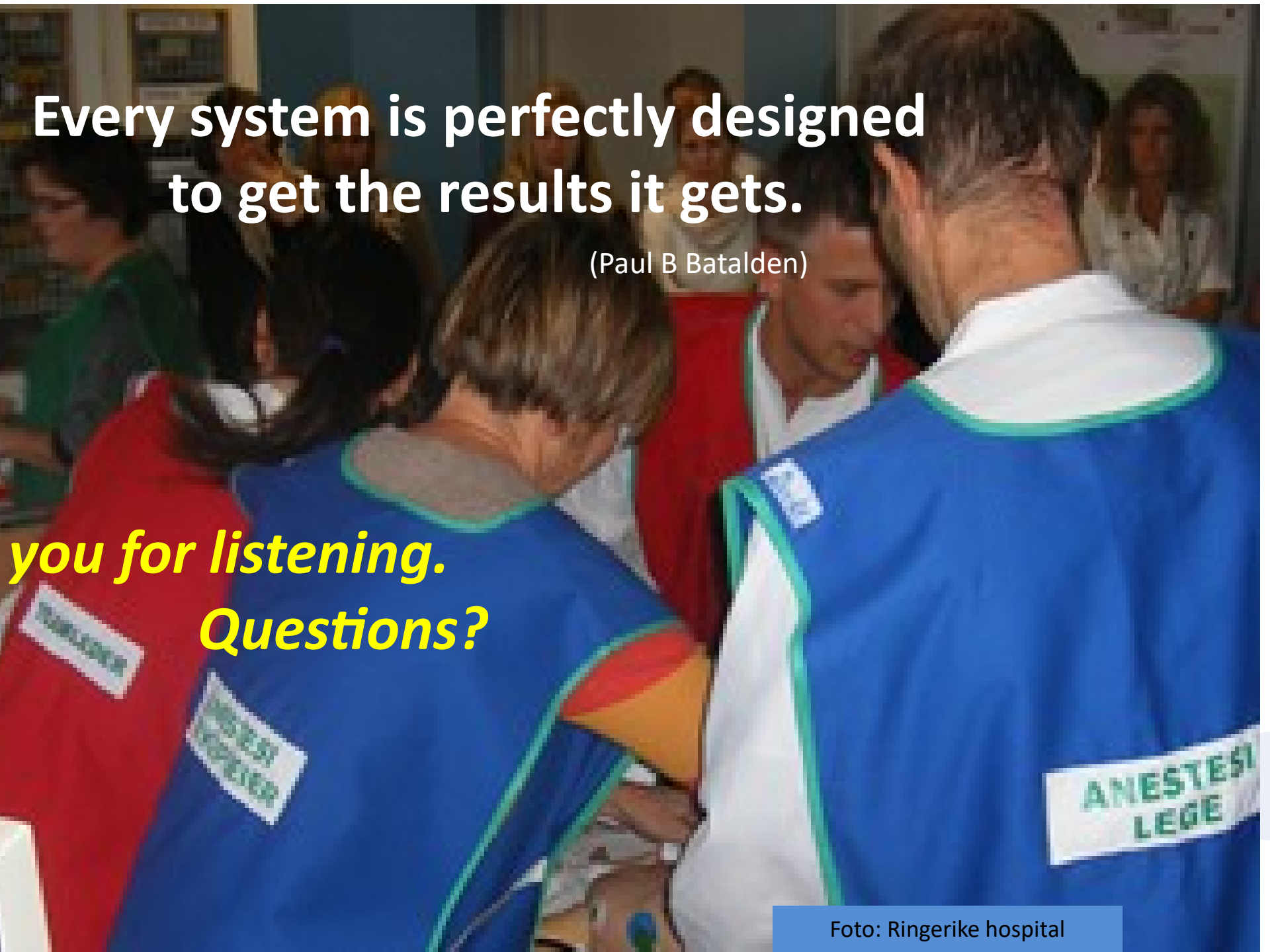
Additional take home messages

1. No plan can cover every situation. The generalizable guidelines were simple and user-friendly.
2. The rest was perfect tailored to the situation by a highly competent and trained personnel.
3. The same team followed the same trauma patient thorough the entire acute care process to prevent life-threatening, hand-off related errors.
4. Tactical management avoided intervening in the details of the service, focusing on getting an overview of the situation by recording data continually, give proper information, and improvise when necessary.


Every system is perfectly designed
to get the results it gets.
(Paul B Batalden)
you for listening.
Questions?
ANESTESI
LEGE
Foto: Ringerike hospital