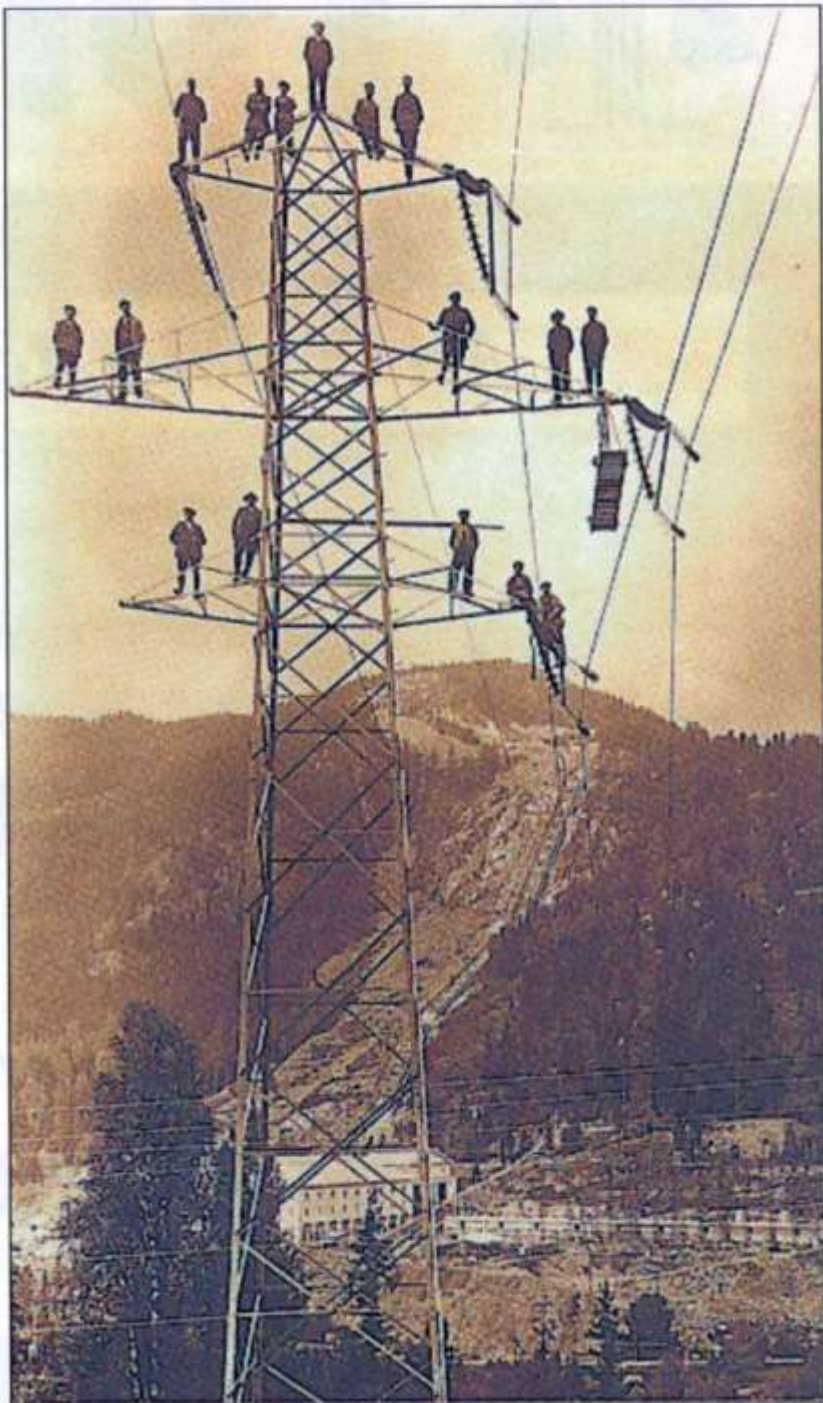


Prevention of (electrical) accidents.

**OSHPro Conference 2019,
Thursday, 21. November 2019 kl.14.00-15.15
Mombasa Beach Hotel, Mombasa, Kenya.**

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A large majority of low-voltage electrical accidents/exposures have no serious health consequences!

But some do!

-but when?
-and why?

You don't know that in advance...

That's why it's important to prevent accidents from occurring!

But how do we prevent accidents?

- Be open about them – Report and discuss accident causes
- Analyze and understand causes of accidents!
- Plan for safety!
- Identify individual as well as organizational causes of risk and accidents!
- Take care of each other – communication!

A culture for correcting each other when riskful behaviour is observed?

- Correcting is interfering and not your business

- Correcting is caring for your colleagues

Isn't it as important to interfere *prior to* a possible accident, as knowing life-saving first-aid *after* an accident has occurred?

Why accident reporting?

- **Make visible that safety is important**
 - Know the extent of the problem!
 - We won't know this if under-reporting is too pronounced.
- **Prevent accidents from occurring**
 - Understand accident causes
 - Where, when and how do they happen?
 - Learn from experiences
 - What interventions may prevent similar accidents in the future?
- **Ensure good and correct medical treatment/follow-up**
- **Documentation from the accident-situation**
 - Regarding exposure and health in the acute phase
 - In case work ability should be affected in the long run

Understand the diversity of accident causes!

3. Work organisation

- Pay system
- Tenders, prising av arbeid/tidsbruk
- Workload/stress:
 - Long workdays
 - Short deadlines
 - To few workers

4. Equipment/tools

- Old facilities
- Tools lacking or sub-standard
- PPE lacking

5. Work tasks

- Duration of task
- Complexity of tasks
- Multiple simultaneous tasks
 - Krysspress, opplæring/læring
 - Disturbing cellphones
- “Indirect” work
 - maintenance, cleaning m.m

2. Customer expectations

- Work on «hot» lines?
- Krav om korte strømavbrudd

1. Laws/regulations

- Individual- or system focus?
- «Blaming the victim»?
- Sanctions/punishment?

11. Physical burden

- Noise
- Strong heat/cold
- Whole body-vibrations
- Air humidity
- Heavy lifting, work postures, ++

10. Your condition

- Too little sleep
- Private stress/burden

9. Knowledge/experience

- Too “much” routine (“Automatized” behavior)
- Too little skill
- Overestimate own skill
- Underestimate risk
- Lack of knowledge of health consequences of exposure

8. Personality/attitudes

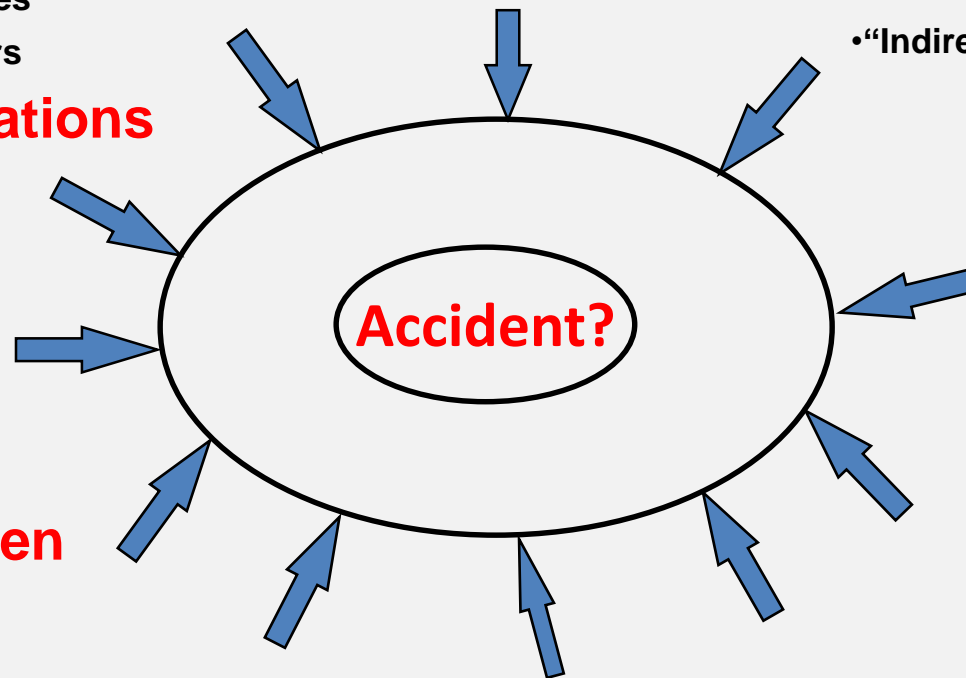
- Willingness to solve problems
- Hard to say no
- Bad conscience (opplevd press)

7. Communication

- Pressure from colleagues/ leader
- Reactions from colleagues/ leader
- Lack of communication
- Misunderstanding
- Role confusion, unclear responsibility

6. Education

- Inappropriate training methods
- Insufficient training
- Modelling



Prevention of electrical injuries -

- ... include designing, planning, organising and adjusting the workplace and the work, so that safe work becomes not only *possible*, but is also *preferred* by each single employee...
- *....in addition to* focusing on the individual electrician

Excessive emphasis on individual factors as causes of accidents?

Organisational and psychosocial work-environment

Organisational and psychosocial work-environment

- Organisational work-environment – Impersonal and structural
- Psychosocial work-environment – Personal and relational

Underlying accident causes: Organisational conditions

- Is about:
 - Decisions
 - ...made at a general, superior level (government, social partners, individual companies)
 - Includes many employees in the current organization
 - Affects / govern decisions throughout the organization
 - Affects / directs interaction within the organization, and...
 - at the individual level (behavior / thinking)
 - Decisions that can be..
 - changed / influenced
 - Considered also in connection with accident prevention

Organisational conditions

Examples: Decisions regarding...

– **Restructuring and acquisitions**

- May create turbulence – or complicate OSH-work

– **Changed forms of employment**

- How combine temporal employment with requirements for stable operation / delivery?

– **Compulsory competitive tendering**

- Avoid: OHS as balancing the budget
- Avoid: Mechanisms that promote concealment
- Avoid: Under-budgeting on time / cost to get jobs

– **Workplace design**

- Affects risk level



Emphasize design of workplaces from
an (electrical) safety-perspective!

Planning!



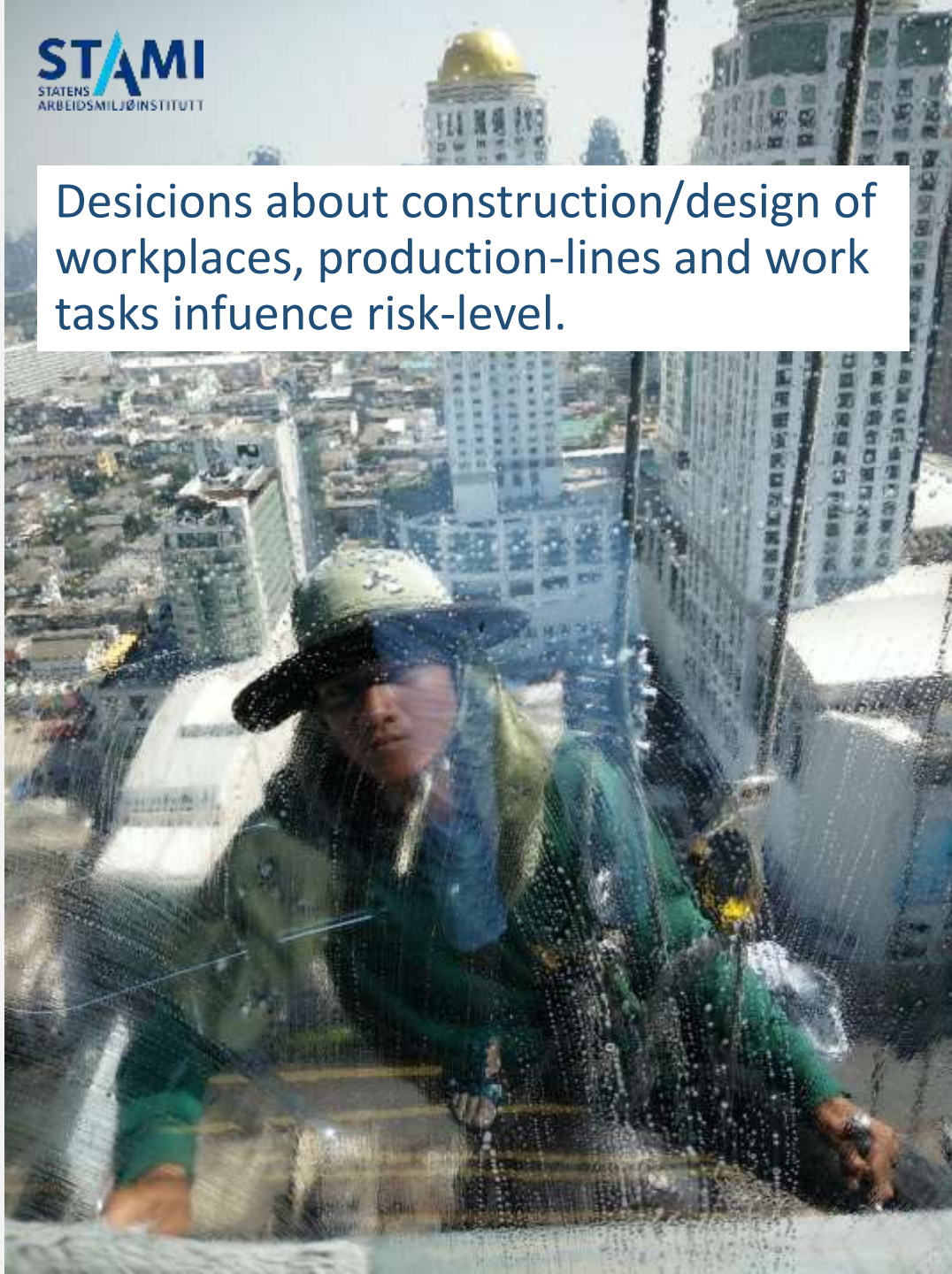


Risk?





Decisions about construction/design of workplaces, production-lines and work tasks influence risk-level.



Organisational conditions

Is OHS-services available to ensure decision-makers always consider safety in their planning?

WHAT he does there is an individual responsibility,
THAT he is there is an organizational responsibility!

Consequenses for accident prevention

- Not system or individual

But rather...

- System and individual

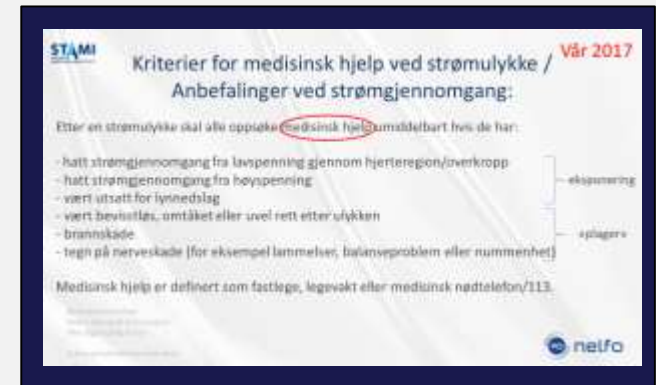
Hierarchy of causes

If *organisational* conditions/decisions are sufficiently optimized regarding safety, probability increases for interventions aimed at improving safety on *individual* level to be successful and show a true effect.

OHS: When the cause is identified –
Ask one more time!

Secondary prevention

- Limit health consequences from accidents II
 - Recommendations for contacting medical consultation (2017)
 - Web-page: «Electrical injuries» – NIOH (2017)
 - Guidelines for Occupational Medicine – Norwegian Electronic Medical Handbook (NEL) (2017)
 - The Electrical injury-app – in Norwegian, English, Polish (2017)



<http://amv.legehandboka.no/handboken/kliniske-kapitler/yrker-og-bransjer/elektriker/>

<https://stami.no/stromskader/>

The Electrical injury-app

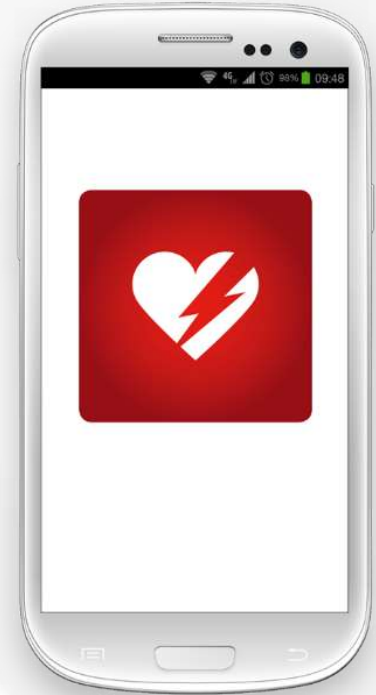
App with recommendations for managing electrical injuries

Practical information for victims of an electrical injury

Recommendations for health professionals

Employers' obligations according to regulations and follow-up

Extra information with useful links



More than 30 000 downloads (2016) «appstore» and «google play»

Developed by Nelfo in cooperation between authorities, the employers' organization, and the employees' trade union.

The Electrical injury-app....

Norwegian



English



Polish



Fare
ingen adgang!

- DANGER - NO ENTRY! - NIEBEZPIECZESTWO WSTĘP WZBRONIONY!



STRØMULYKKE



Hva gjør jeg?



Helsepersonell

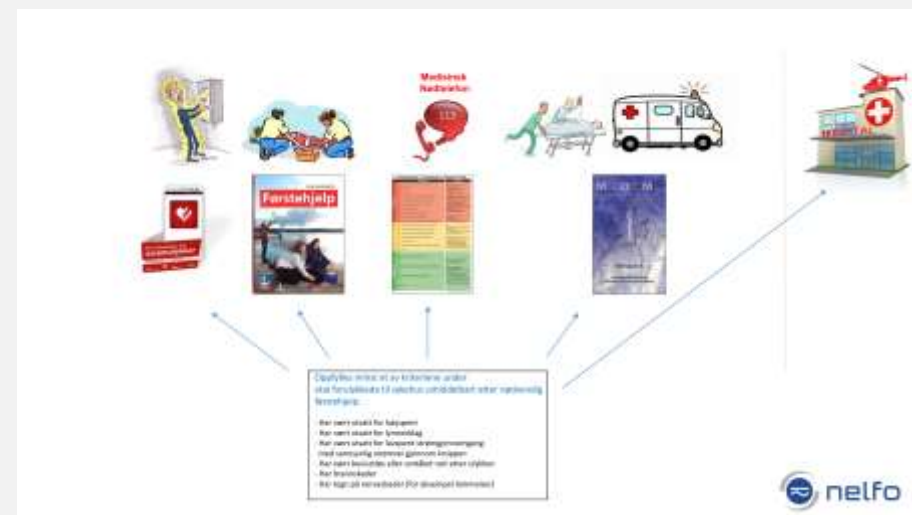


Arbeidsgiver



Preventing electrical injuries -

- **Primary prevention**
 - Prevent accidents from occurring
- **Secondary prevention**
 - Limit health consequences from accidents
 - Minimize exposure
 - Barriers and PPE
 - Minimize health-effect
 - First aid
 - Medical acute treatment and follow-up
 - » Recommendations for seeking medical help (2017)
 - » Electrical injuries – Website NIOH (2017)
 - » Occupational Medical guidelines – Norsk Elektronisk Legehåndbok (NEL) (2017)
 - » Electrical injuries app – Information in English, Polish Norwegian! (2017)

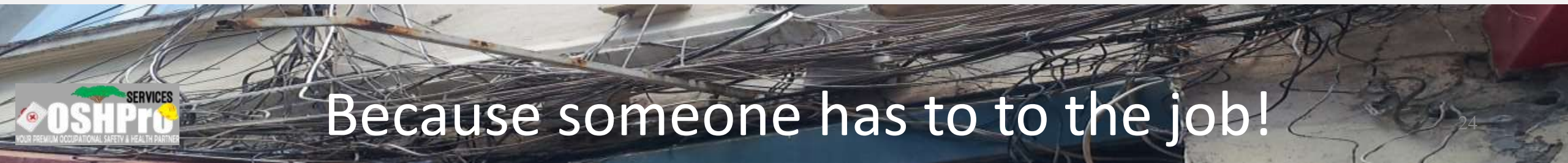


Some precursors of accidents

- Systemic/organizational
- Management
- Communication and cooperation style/"culture"
- The impact of role models, and teaching the profession
- Individual work habits, and
- Basic professional education

Remember workers' safety!

- Increased demands for operational reliability and changed climatic conditions impose extra stringent requirements for preventive measures among employees in the electrical industry
- Take care of employees, pay attention to **limitations in human performance**
- Both **organizational and individual matters are crucial** for personal safety!
- **Training-/competence-development** must be adapted to increased and changed knowledge-requirements
- When accidents happen: Contribute to the best possible support in healthcare!



Because someone has to do the job!

Challenges and opportunities in accident prevention based on Kenyan and Scandinavian conditions and experiences:

- OHS in the **electricians' professional education**?
- Interface between **formal and informal sector**, and health risk?
- **Organizational climate**: Hierarchical or cooperative approach between employers and employees?
- The experienced professional - **Role models** for the young/unexperienced?
- Willingness to **report accidents**, and accept/tolerate being reported to?
- **Communication**: To correct colleagues and appreciate to be corrected
- Access to **health care** in case of accidents?
 - I look forward to interesting discussions and reflections!

The best preventive intervention is to avoid accidents

Workshop discussion!