

VISION ZERO

A Public Health Initiative: Vision Zero -
Together to Zero Cancer Deaths

VISION ZERO
PRACTICE



A Public Health Initiative: Vision Zero – Together to Zero Cancer Deaths

Authors

Prof. Dr Christof von Kalle

Berlin Institute of Health at Charité –
Universitätsmedizin Berlin
Vision Zero e.V.

Dr Stefanie Rudolph

Berlin Institute of Health at Charité –
Universitätsmedizin Berlin

Petya Zyumbileva, M.A.

Berlin Institute of Health at Charité –
Universitätsmedizin Berlin

Human life is under constant threat from various lethal dangers. Small mistakes, such as a slight misstep on the road, steering a few centimetres into oncoming traffic, flipping the wrong switch at work, mixing the wrong substances, choosing an inappropriate dosage, or forgetting to lower the landing flaps as a pilot, can quickly lead to death and destruction. However, despite these potential hazards, we have achieved an incredibly high level of safety in almost all areas of life. So how did we get there?

The basis for safety in all areas is the implementation of Vision Zero concepts. This means that the security concept is initially based on a societal decision to no longer accept the usual number of fatalities in various areas. This is achieved quite easily when the resulting damage is visible, dramatic, bloody and loud. An exploding factory, a crashed aeroplane or accident victims in wrecked vehicles motivate society to work towards safe solutions and defence concepts. The goal is to avoid the same fate for everyone and their loved ones. Successful risk avoidance involves attacking step by step, simultaneously and independently, at all levels and in all trades. Furthermore, human error is correctly understood as a cause of danger in Vision Zero concepts: it is human and, therefore, unavoidable. This means that systems are not organized by demanding perfect human behaviour in faulty systems, but rather that fault tolerance and resilience are built into the systems step by step.

The Roots of Vision Zero

While there may not be fewer accidents on the roads, most people no longer die. Introduced safety measures such as railings, crash barriers, walls or technological developments such as computers or even ABS systems do their utmost to prevent people from unintentionally killing themselves or others. Some of these systems are available for free, while others are quite expensive, but the overall cost-effectiveness is always considered. In Germany, accident costs amount to

over 30 billion euros per year, with just under 3,000 road deaths, which equates to over 10 million euros per road death (Federal Highway Research Institute 2020).

In 1811, the chemist Eleuthère Irénée du Pont (founder of today's chemical company DuPont) drew up the first safety rules for his production following a series of serious accidents at work. The motto "Every accident is avoidable" and the creation of an error-preventing working environment proved to be an effective driver and incentive for prevention. The principle of recording and evaluating all accidents and near-accidents as early and completely as possible still leads to better health and safety for employees today.

In order to achieve this, measures must be integral to the process by making the objective of "reducing avoidable sources of danger" the actual centre of the strategy, not just the execution and implementation of measures.

In industry and everyday technical life, such as work and transport, these successes are achieved in many stages, at regional, national, and European levels, in small steps that together achieve enormous progress. Consequently, Vision Zero concepts have only celebrated their greatest successes decades after their introduction due to measures that were either not even invented at the beginning, considered unfeasible, or far too expensive.

Aeroplanes hardly ever crash anymore, and being at work is statistically safer than staying at home or even in bed. This is because safety measures costing several thousand euros are installed in every vehicle today, and several million euros are even invested in every airliner and factory. Less reflective discussions easily confuse these ideas with prohibition concepts and attempt to discredit zero targets as unrealistic. However, a brief investigation reveals that these supposedly unrealisable "zero targets" have already been achieved in many areas of modern road safety (as well as in other areas).

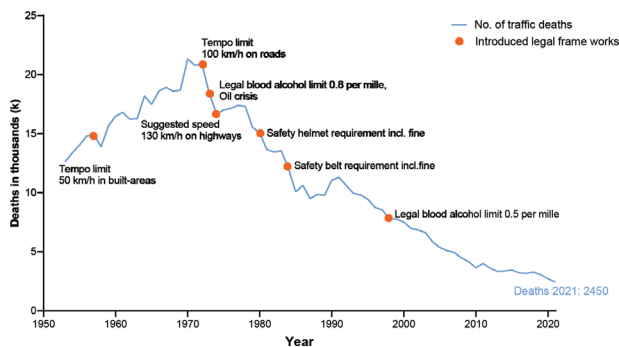
“ The Vision Zero initiative aims to reduce or eliminate cancer fatalities in oncology by integrating advanced preventive measures, early detection, and cutting-edge treatments. ”

Vision Zero: A Sustainable Strategy for Traffic Safety

In Scandinavia where Vision Zero concepts have been pursued since the 1970s, the accident rate has been reduced drastically while increasing the number of kilometres driven. Helsinki (Finland) and Oslo (Norway), which work with traffic management and traffic speed adjustment measures, recorded no pedestrian or cyclist fatalities in 2019 and 2020, respectively. Overall traffic fatalities were also reduced to almost zero (Helsinki 2019: 3 traffic fatalities, Oslo 2020: 1 traffic fatality).

In the 1970s, Germany adopted a Vision Zero strategy to reduce the rising road accident figures. Over the last 50 years, this strategy has proven to be a great success story. With every step, new measures were introduced, leading to this strategy's overall success (see Figure 1, Federal Statistical Office, Destatis).

Figure 1. Development of road fatalities in Germany (1960-2021) (Numbers in thousands)



Similarly, the aviation industry has adopted a zero-defect tolerance policy. The commercial aviation industry has achieved brilliant accident avoidance work, making air travel ten times less likely to cause an accident than being struck by lightning.

Vision Zero in Medicine

Vision Zero is a concept that aims to eliminate deaths and serious injuries, successfully implemented in traffic safety initiatives. Nevertheless, why don't we apply this principle to other areas, especially medicine? Currently, healthcare accepts unnecessary risks without questioning such as preventable death from cancer. However, early detection and

prevention measures could prevent up to half of all common diseases. Expensive preventive measures would be cost-effective in the long run. To achieve this, we need research infrastructures focusing on early disease detection. This will help us deal more resiliently with "known knowns" - events that are often neglected despite their high probability of occurrence and expected impact.

So far, society is not doing enough, even regarding "known unknowns". For example, it often goes unnoticed if two family members fall ill with the same problem. This is because the knowledge about familial genetic diseases is still limited, and the information needs to be systematically collected and analysed. If doctors and scientists could use digital tools to analyse genetic information or even just medical histories and case histories, some diseases could be avoided altogether, and treatments could be improved. To collect patient data systematically and use it for research purposes, we need innovative structures and rules that enable data collection in everyday clinical practice. This would allow patients to provide their health-related data (with their consent) for research purposes. However, to make these structures sustainable and resilient, we need a system of checks and balances that includes a quality assurance body and uses strict control mechanisms to ensure that certain measures are taken before a crisis occurs.

First Principles of a Vision Zero in oncology

- Prevention / Interception
- Precision / Personalization
- Provider and Patient Reported Data

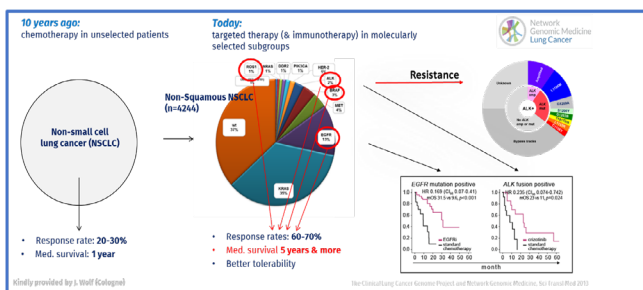
From Road Safety to Eliminating Cancer

The field of precision oncology has shown that secure and value-added collection, bundling, targeted analysis and data sharing can effectively fight cancer. The National Network for Genomic Medicine (nNGM) is a German network for molecular and personalised lung cancer diagnostics and therapy that is a result of a national cooperation between leading oncology

centres, financial support from health insurance companies, and German Cancer Aid. Patients who participate are registered, and their samples are centrally analysed. The detailed molecular diagnoses are recorded digitally, and individual therapy options and consequences are discussed on scientific boards. The results are transmitted digitally so that most patients can be treated locally according to the latest scientific findings or off-label recommendations. Currently, more than 50% of all German lung cancer patients can already be offered the best possible diagnosis and personalised cancer therapy thanks to the structures of the nNGM. By recording all data in a central database and obtaining patients' consent for their data to be used for research purposes, new insights are continuously being gained, which drives further innovations in cancer therapy development. For instance, the nNGM demonstrated a significant survival benefit through targeted therapies compared to general chemotherapy treatments by collecting data via proof-of-concept.

The Vision Zero initiative aims to reduce or eliminate cancer fatalities in oncology by integrating advanced preventive measures, early detection, and cutting-edge treatments. This approach considers preventive healthcare and early detection as the cornerstone of its success. The initiative aims to lower the number of new cancer cases diagnosed each year by embracing prevention strategies like vaccination against cancer-causing viruses. Additionally, it seeks to enhance early detection through widespread screening programs, thereby improving survival rates. Its success relies on medical breakthroughs, societal mobilisation, and policy reform. Vision Zero calls for a collective effort to prioritise cancer prevention and care, like the responses to public health crises like the COVID-19 pandemic. The initiative challenges society to allocate resources towards preventive healthcare, ensuring that advancements in cancer treatment are accessible to all.

Conclusion



The Vision Zero approach in cancer care is a comprehensive strategy that aims to provide effective cancer treatment while emphasizing the importance of prevention and early detection. This approach acknowledges that fighting cancer is not only about discovering better treatments but also about changing our beliefs and attitudes regarding cancer prevention and early detection. The Vision Zero concept has the potential to make a significant impact on cancer care. By uniting stakeholders in the fight against cancer, this approach aims to create a world where cancer is no longer a devastating disease that claims lives prematurely. In conclusion, the Vision Zero approach is a powerful and inspiring way to provide cancer treatment, and it can potentially change the course of cancer care for the better.

Nationwide networks like the nNGM should make molecular diagnostics available to cancer patients throughout Germany in the future, enabling patient-oriented therapy optimisation. Cross-site exchange of research data is essential to adequately research individual genetic mutations and molecular subgroups of rare cancers, thereby improving treatment options. The pooling of data flows can also accelerate and advance cancer research from the laboratory to the patient's bedside to improve the well-being of cancer patients and their caregivers and promote patient- and family-centred oncological care. This approach promotes the democratisation of access to state-of-the-art diagnosis and treatment options that are increasingly becoming independent of the place of residence and no longer remain the exclusive preserve of patients close to university hospitals and centres of excellence.



This article was presented at the A+A 2023 held in Düsseldorf from 24 to 25 October 2023.

A publication of the International Section of the ISSA on Information for Prevention.

Published in 2024.