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Evaluation of Information Systems Relevant to Climate Change and Health

Volume 2: Adaption to Climate Change: Strategy for Provision of Health Care in Case of Extreme Weather Events

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Evaluation of Information Systems Relevant to Climate Change and Health

Volume 2: Adaption to Climate Change: Strategy for Provision of Health Care in Case of Extreme Weather Events

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Abstract

Climate change affects human health through more frequent and/or more severe extreme weather events and increasing climate variability.

Furthermore, a strategy for the care of old and sick citizens by nursing care providers and office-based physicians was developed that will be viable under extreme weather conditions.

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List of Abbreviations

AFK	Adaptation to the impacts of climate change
APA	Action plan: adaptation
AWMF	Association of the Scientific Medical Societies in Germany e.V.
ÄZQ	German Agency for Quality Assurance in Medicine (ÄZQ)
BB	Brandenburg
BBK	German Federal Office of Civil Protection and Disaster Assistance
BE	Berlin
BfR	German Federal Institute for Risk Assessment
BMBF	German Federal Ministry of Education and Research
BMG	German Federal Ministry of Health
BMUB	German Federal Ministry for the Environment, Nature Protection, Building and Nuclear Safety
bpa	German Federal Association of Private Social Services e.V.
BVL	German Federal Office of Consumer Protection and Food Safety
BW	Baden-Wuerttemberg
BY	Bavaria
CATI	Computer Assisted Telephone Interview
DAS	German Strategy for Adaptation to Climate Change
DBfK	German Professional Association for Nursing Professions
DEGAM	German Society of General Medicine
DNQP	German Network for Quality Development in Nursing
DWD	German Weather Service
FKZ	Research code
FuE	Research and Development
H	Heat Alert System
HB	Bremen
HE	Hessen
HH	Hamburg
HUPO	Heat Warning system, UV-Index, Pollen forecast and Ozone Forecast
IMA	Inter-ministerial working group
IPCC	Intergovernmental Panel on Climate Change
KBV	German National Association of Statutory Health Insurance Physicians
KNMI	Koninklijk Nederlands Meteorologisch Instituut

KomPass	Competence Centre on Climate Impacts and Adaptation at the German Federal Environment Agency
Mac	Apple Macintosh computer
MV	Mecklenburg-Western Pomerania
MVZ	German Health Care Centre
NI	Lower Saxony
NW	North Rhine-Westphalia
O	Ozone Forecast
ÖGD	Public Health Services
P	Pollen Count Forecast
PC	Personal computer, a stand-alone workstation computer
PID	Foundation German Pollen Information Service
QM	Quality Management
RKI	Robert Koch-Institute
RP	Rhineland-Palatinate
SH	Schleswig-Holstein
SL	Saarland
SN	Saxony
ST	Saxony-Anhalt
TH	Thuringia
THW	German Technical Relief Agency
U	UV-Index
UBA	German Federal Environment Agency
UTCI	Universal Thermal Climate Index
UV	Ultraviolet
UVI	UV-Index
VLA	Veterinary and Food Control Office
VLÜA	Veterinary and Food Control Office
WaBoLu	German Institute for Water, Soil and Air Hygiene
X	Extreme weather events

Summary

Introduction

Climate change affects human health through continuing change, more frequent and/or more severe weather events and increased climatic variability. The project aims to develop a strategy for providing health care to old and sick people by practice-based physicians and nursing facilities and services in case of extreme weather events.

This investigation was carried out as part of the project “Adaptation to Climate Change: Evaluation of Existing National Information Systems (UV-Index, Heat Health Warning System, Airborne Pollen and Ozone Forecasts) From a Public Health Perspective – How to Reach Vulnerable Populations?”, short title: “Evaluation of Information Systems Relevant to Climate Change and Health” of the environmental research plan of the Federal Ministry for Environment, Protection of Nature and Building and Reactor Safety (Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit) under the research ID 371262207.

The present volume is an abbreviated and revised version of the final report of the project (Capellaro and Sturm 2015a).

The first volume, “Adaptation to Climate Change: Adaptation to Climate Change: Evaluation of Existing National Information Systems (UV-Index, Heat Health Warning System, Airborne Pollen and Ozone Forecasts) From a Public Health Perspective – How to Reach Vulnerable Populations?” (Capellaro and Sturm 2015c), evaluates national information and early warning systems (UV-index, heat health warning system, airborne pollen and ozone forecasts) and formulates a concept for communication.

Method

The following method was used:

- ▶ The physicians as well as nursing services and nursing facilities were requested to complete an online questionnaire. This survey was used to describe the initial situation in these areas: the extent to which disturbances associated with extreme weather events influence the care for patients and to what extent preparations had been made.

Initial Situation

Interrogation of the physicians and nursing facilities disclosed, on the one hand, great apprehension with more than 75 % entailment by extreme weather events within the preceding five years but, on the other hand, only slight preparation against such threats to the care of the chronically ill and of those requiring nursing care.

The consequences of extreme weather events in the past were traffic obstruction (physicians 72 %, nursing 76 %), power failure (physicians 52 %, nursing 63 %) and increase of the work load (physicians 52 %, nursing 62 %).

Among the possible consequences of extreme weather events, power failure was considered with 91 % the most serious in physicians’ practices, followed by failure of light and heat with 87 % and failure of telecommunications with 84 %. In the nursing sector, the most serious consequence was severe traffic obstruction with 92 %, absence of personnel with 89 %, and inability to get to their customers with 87 %.

There are also arguments against preparatory measures: 51 % of physicians say that influenza waves are more problematic than extreme weather events, similarly for diarrhoea epidemics in nursing homes. 20 % of the interrogated physicians regard the plans as useless bureaucracy.

17 % of physicians claimed to be well prepared for extreme weather events and their consequences and that 19 % of their supporting staff also were. An average of 14 % said they had emergency plans for various scenarios. 30 % have plans for failure of their electronic patient management and 24 % have a plan to deal with an absence of aides in their practices.

An average of 47 % of stationary and semi-stationary nursing facilities have plans for various scenarios. 62 % have an emergency power supply and plans for power failure (55 %), plans for lack of personnel (57 %) and for failure of lifts (50 %).

Of the interrogated nursing care providers, 37 % had an emergency plan for extreme weather events. Of those with plans, 75 % had a plan for lack of personnel, 54 % a plan for failure of vehicles, but 60 % had no plan for power failure and 47 % had no plan for failure of telecommunications.

Agreements on dealing with the consequences of extreme weather events are rarely made. In the physician group, 3 % had made arrangements with the municipal administration and 9 % of nursing care providers received instructions for plans from the public health bureaucracy. Nursing facilities and services made arrangements with family members and neighbours most frequently (37 %).

Of nursing care providers, 23 % said they had agreements with physicians and 19 % with other nursing facilities and nursing care providers.

The statement that nursing care providers suffered from a lack of support in connection with extreme weather events was confirmed by 62 % of respondents; of these, 45 % had experienced this personally.

Newsletters with heat and other severe weather warnings are utilised by 55 % of the interrogated nursing facilities and providers and by 20 % of the physicians. 71 % of nursing facilities and services would welcome targeted storm warnings.

66 % of physicians and 36 % of nursing care providers claim that the weather warnings in the media suffice.

To prepare for extreme weather events, approximately 60 % of all respondents expect to find information on the Internet; 50 % consider training sessions appropriate and 40 % would approve of a manual.

For acute coping with weather emergencies, 60 % think that information on the Internet and a telephone hotline would be sensible.

Consequences for the Care Concept

Emergency Planning

Emergency plans for serious traffic obstruction, power failure and absence of personnel should be recommended or mandated in medical practices, e.g., as a component of quality management. In nursing facilities, these scenarios should be incorporated in the emergency plan.

Under the leadership of the subordinate public-health agencies, communication among the regional medical and nursing facilities should be fostered in the interest of mutual support and coordination of actions.

Educational Efforts

Learning by all participants should be promoted in the media, by events and on the Internet with the aim of improving risk awareness and achieving better risk management.

Information Management

The institutionalised information channels should be utilised more consistently, for example by subordinate public-health agencies in forwarding information to health care facilities and nursing care providers.

Additionally, a telephone hotline for help calls and advice and a website for current information, recommendations and initiated procedures can be prepared and realised by the subordinate public-health agencies or by the municipal administration.

1 Background and objectives

1.1 Background

Climate change affects human health through continuous changes, with more frequent and/or increased incidence of extreme weather events and by increasing climate variability. This vulnerability affects health infectious diseases, non-communicable diseases and injuries resulting from extreme weather events.

The care of old and sick people can be imperilled by extreme weather events. A distinction is made between direct consequences, in which extreme weather events have immediate health impacts, and indirect effects, where health damage does not result from an extreme weather event itself but from the results from such event, e.g., power failure. Also disruptions to road traffic are to be included, which make it more difficult to reach facilities and individuals in need of care.

1.2 Objectives

The goal of the study at hand is to develop a strategy for the provision of care under extreme weather events. The strategy was based on a survey of doctors and physicians as well as outpatient and inpatient care facilities and is therefore also oriented towards the conditions of care providers.

2 Introduction

2.1 Extreme weather events

Extreme weather events are weather events that exceed or fall short of defined threshold values. Such threshold value is set at the highest and the lowest margin of previously observed values (refer to Field, Barros & Stocker 2012) ¹.

The DWD draws attention to the following weather events by means of official Warnings (Weather / Severe Weather Warnings) (DWD, 2013):

- ▶ Wind/storm/hurricane
- ▶ Thunderstorm
- ▶ Heavy rain
- ▶ Incessant rain
- ▶ Snowfall / snow drifts
- ▶ Slipperiness
- ▶ Thaw period
- ▶ Frost
- ▶ Fog

In addition and under the heading “Special Warnings”, the DWD offers the following Newsletters regarding Extreme Weather Events:

- ▶ Heat Warnings
- ▶ High UV-Index Warnings
- ▶ Sea Weather Warnings
- ▶ Coastal Warnings
- ▶ Inland lake Warnings

2.2 Health care structures

The following health areas are particularly affected in addition to the entire infrastructure, thus the entire comprehensive supply of the population, including the disposal of waste water and waste:

- ▶ The rescue service
- ▶ The outpatient medical care, especially organised emergency service, general practice, paediatric and acute medical care (e.g. surgery)
- ▶ Inpatient care
- ▶ Nursing care

These structures are supervised by different authorities and bodies and have no common information channels. In addition, the funding is different.

¹ Climate extreme (extreme weather or climate event). The occurrence of a value of a weather or climate variable above (or below) a threshold value near the upper (or lower) ends of the range of observed values of the variable. For simplicity, both extreme weather events and extreme climate events are referred to collectively as “climate extremes.” (Glossar IPCC 2012)

2.2.1 Rescue services

Ambulance services are supervised by counties and municipalities, which tender the services and administer the funding with the participation of health insurance companies. Fire-fighters act as dispatcher and vehicles and rescue workers are provided by organisations such as Red Cross, Malteser and others. The medical profession, usually hospital physicians, participates on a voluntary basis. An additional qualification is a prerequisite for their activities in emergency services. There is a professional organisation and a scientific society.

2.2.2 Outpatient medical care

The Association of Statutory Health Insurance Physicians as a public corporation has the mandate for the entire patient care. The municipalities have virtually no responsibility in this area. In addition to the German Federal Association of Statutory Health Insurance Physicians there are also Association of Statutory Health Insurance Physicians within the Federal States of Germany.

There are numerous pressure groups that are organised by subject groups as well as regional network structures of varying size and density.

There are individual and joint surgeries of various types - including employed physicians - medical care centres of various sizes and linkage as well as surgery networks with up to 100 participants, some of which are led or accompanied professionally. Special financing may also be available in this context.

The medical emergency service has evolved from the “presence requirement” throughout the week for all doctors and physicians. From the previous organising of proxies in cases of hindrance, now an organised emergency service with service plans has emerged, which is partly continuous and partly staffed with physicians that are specialised in medical emergency services. Consequently, only little medical personnel is available for duty, which results in the need to organise background services in times of need.

2.2.3 Inpatient care

German hospitals are funded in a dual system: On the one hand by the counties and municipalities, which are responsible for the structures and on the other hand by the health insurance in form of a morbidity rate billing system (“case-based lump sum arrangement”) that remunerates the actual medical services to a patient. The operating structure is diverse and ranges from DAX Enterprises via universities to local authorities. The German Hospital Federation is an association of hospital operators; there is no common medical structure of the hospital doctors and physicians. The “Marburger Bund” is a pressure group for collective labour agreements; otherwise, professional associations or societies of the medical profession are acting.

Hospitals with their emergency departments participate in securing medical care. Outpatients seeking help use such emergency departments.

The “Hospital Alarm Planning Guide” (Cwojdzinski, 2012) serves as a guideline for mass casualty incidents. Also, the “Crisis Manual - Power Failure” (BBK, 2011) serves as a planning aid.

2.2.4 Nursing care

Home nursing care is provided in constant competition by self-employed individuals and by home care service organisations of various sizes and by large charities. This competitive situation results in

situations, where not necessarily the closest option to a patient is chosen, but longer journeys are accepted.

In most cases, relatives will provide nursing in parallel, however relatives also provide care only. Here there is a risk that disturbances may go unnoticed at first, if such individuals are not socially connected.

Care services offer the following:

- ▶ Medically prescribed measures that are financed by health insurance companies, such as injections, dressings, administration of medication; performed by professionals
- ▶ Nursing measures such as basic care, incontinence care, washing and bedding, which is financed by the nursing care insurance up to a maximum defined by law and expert opinion; inspections are conducted by the so-called “medical service” of health insurance organisations
- ▶ Household assistance measures such as meals on wheels, shopping, apartment cleaning, etc., which is financed by the persons in need themselves
- ▶ Assisted living; nursing care is not included

Inpatient care in nursing facilities and nursing departments offer services in accordance with the relevant provisions that range from care to recreation services. Inspections are conducted by the so-called “medical service” of health insurance organisations. In addition, the health authorities also exercise control, e.g. in terms of disease control.

2.3 Relevance of extreme weather events for health care structures

The care of old and sick people can be imperilled by extreme weather events. A distinction is made between direct consequences, in which extreme weather events have immediate health impacts, and indirect effects, where health damage does not result from an extreme weather event itself but from the results from such event, e.g., power failure.

2.3.1 Direct impacts

Most extreme weather events can result in extreme weather-related health risks such as accidents or injury or mental stress. Accidents and injuries affect primarily individuals who reside in the open air during extreme weather events. This group includes elderly and sick people to a rather less extent. Nevertheless, increased care expenses or personnel requirements are assumed (see below). Heat waves are particularly associated with additional health risks for elderly and sick people and also lead to increased care expenses or personnel requirements.

2.3.2 Power supply failure

Even a power failure and a failure of telecommunications may result in implications for medical care. “Even very short power outages can have violent effects on [...] IT or telecom or other sensitive electronic systems.” (BBK, 2011)

The crisis manual “Crisis Management Power Failure - short version - Crisis Management for large-scale disruptions of the power supply by the example of Baden- Wuerttemberg ”, which was published by The Ministry of the Interior of Baden-Wuerttemberg and the Federal Office for Civil Protection and Disaster Assistance (BBK), lists the impact of power outages of different duration for the different parts of the health service. (Innenministerium Baden Württemberg, The Ministry of the Interior of Baden-Wuerttemberg, 2010).

This manual also lists some consequences of power failures with durations of less than 8 hours for the sub-sectors nursing homes, retirement homes, private practice:

- ▶ Behavioural changes, confusion or panic of patients
- ▶ Failure of communication networks
- ▶ Failure of the patient emergency call systems
- ▶ Failure of lung ventilators, diagnostic equipment, treatment equipment
- ▶ Failure of cooling systems (e.g., refrigerators and air conditioners)
- ▶ Lighting failure
- ▶ Failure of elevators
- ▶ Fall overs (due to low lighting)
- ▶ Increased risk of fire (due to use of candles)
- ▶ Failure of the electronic patient management system
- ▶ Limitation of administrative activities
- ▶ Disturbance of food preparation and supply of beverages

2.3.3 Disruption of road traffic

Traffic obstructions as a result of extreme weather events are relevant for medical care, as care providers cannot reach the people in need of care. Disruption to road traffic primarily affects mobile nursing care (basic care such as dressing and body care, incontinence care, administration of medication, administration of insulin, as well as acute diagnostic and therapeutic measures) as well as the care provided by home visits of private doctors and physicians. Furthermore, disruptions to road traffic also affect patients who need to visit doctors, since they cannot reach the doctors' surgeries or become exposed to road traffic hazards.

2.3.4 Heating supplies

Heat supply is especially important during extreme weather events that include cool temperatures. The failure of heating systems affects surgeries, inpatient and semi-residential care facilities as well as the living quarters of the patients.

2.3.5 Food supply

A power failure or disruption of road traffic by previous extreme weather events may restrict the supply of food. Private or professional help can belatedly reach the person in need of care. In addition, the perishableness of food rises in case of failure of electric-powered refrigerators.

2.3.6 Care expenses / increased staffing needs

The impact on road transport and power are less likely during heat periods than during other extreme weather events. Nevertheless, it should be noted that, particularly elderly and sick people might require more extensive support effort. During a still unchanged state of health, more instruction and observation are required, in order to possibly adjust the treatment measures (e.g., medication). If a health condition is affected by heat, the health status must be closely monitored in order to take further action, if necessary.

The care effort during extreme weather events might also be increased due to possible psychological distress and possible accidents.

2.3.7 Personnel shortage

In addition to the increased scope of care services, accidents and obstruction of the infrastructure can also affect the people providing care services, which in turn could reduce the amount of staff available.

2.3.8 Evacuations

Evacuation measures represent a special case. Germany currently lacks a nationwide uniform regulation on how to ensure the detection of people in need of care in cases of evacuation.² This task resides in the competence of the German Federal States, which in turn delegated this task to the municipalities.

A leaflet about a possible evacuation in the county of Lüneburg encourages the parties concerned, to ensure themselves that they can be found. “People receiving care, kindly agree upon their evacuation with their respective care providers.” (Katastrophenschutzstab Landkreis Lüneburg, Civil protection headquarters, county of Lüneburg, 2013).

In cases, where telecommunication is disturbed, any consultation with care providers will be more difficult.

2.3.9 Summary

The following disorders relevant for health care can be expected in cases of extreme weather events:

- ▶ Reduced accessibility to people in need of care (road traffic, evacuation)
- ▶ Power supply failure
- ▶ Increased staffing requirements / support effort

An increased demand for coordination and communication is expected for performing urgent care tasks as a result of such disorders and the possible absence of service providers. A failure of telecommunications has a particularly aggravating affect in this context.

² Telephone conversation, Mrs. Kölln, German Federal Office for Civil Protection and Disaster Assistance, on 27 June 2013

3 Method

3.1 Design of questionnaires and technical implementation

Questionnaires for the survey of doctors in private surgeries and the survey of nursing services and facilities have been developed. (Capellaro and Sturm, 2015b).

Both questionnaire versions were incorporated in a programmed online survey tool (SurveyMonkey, <https://de.surveymonkey.com/>).

For the survey of the nursing home staff, a special branch had to be provided within the questionnaire. Some questions, such as “How long are the journeys you need to travel to provide your customers with care services?” are only relevant for care providers, which (also) perform care services for outpatients. Other questions such as “How many places do you provide for patients in your inpatient or day-care facility?” in particular address institutions that provide inpatient and/or day-care services. A branching logic was applied that ensures that the respective respondents are only asked questions that apply to the facilities or services for which they provide answers.

3.2 Questionnaire distribution

The following steps were performed for the distribution of the questionnaires:

- ▶ Discussions with the German Federal Association of Statutory Health Insurance Physicians (KBV)
- ▶ Discussions with the German Federal Association of Private Social Services e.V. (bpa)
- ▶ Creation and dispatch of a press announcement (refer to Capellaro and Sturm, 2015b)
- ▶ Research and information of other multipliers in medical and care professions.

These steps resulted in numerous references to the upcoming survey in print media and on websites. For example:

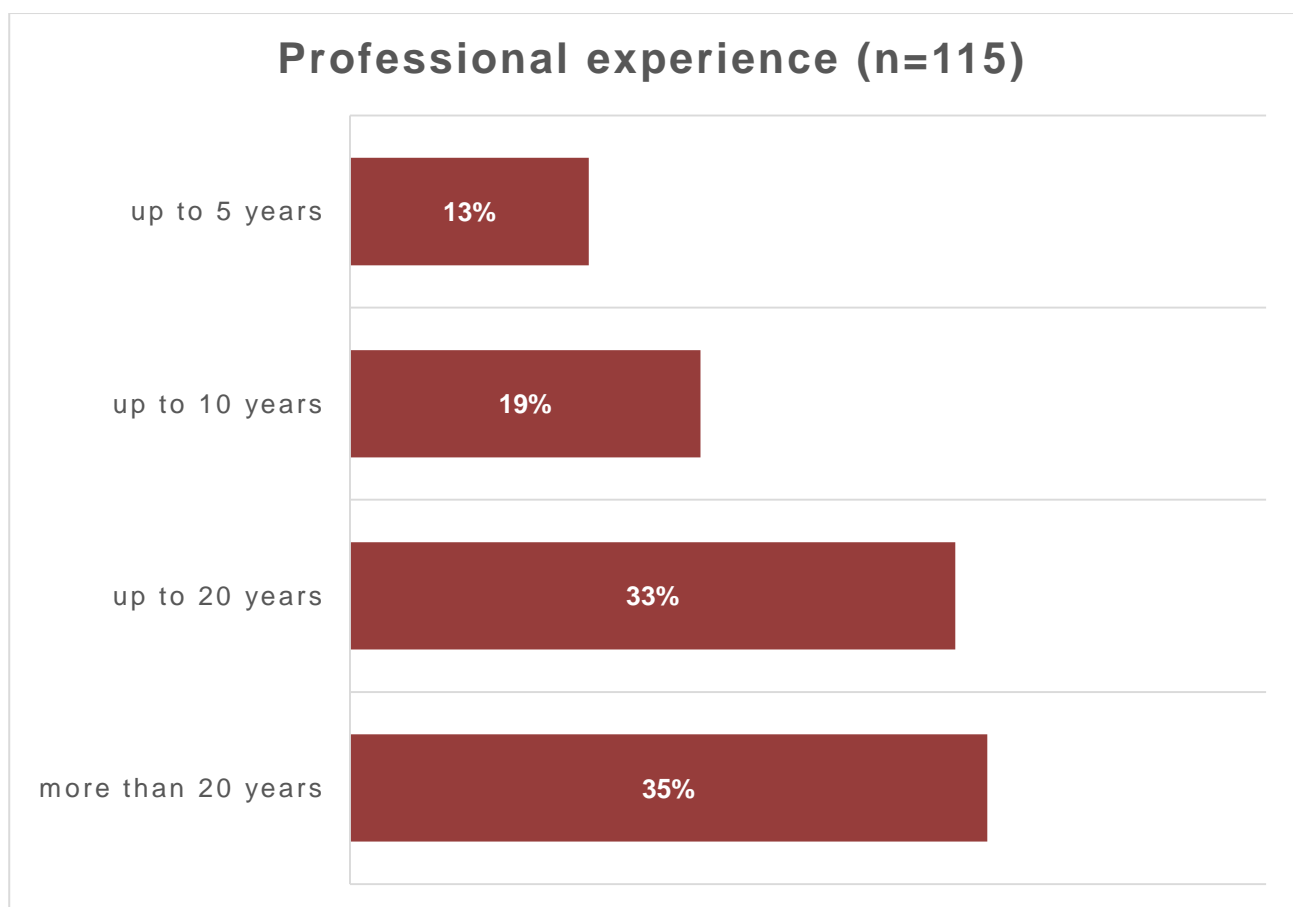
- ▶ KBV Website
- ▶ Information of the Associations of Statutory Health Insurance Physicians by the KBV
- ▶ Information for the members of the bpa
- ▶ Information for the members of the German Professional Association for Nursing Professions (DBfK) Federal Association e.V.
- ▶ German magazine for doctors (Deutsches Ärzteblatt) (website and printed edition)
- ▶ Website of the German Society of General Medicine (DEGAM)
- ▶ GP Magazine (“Hausarzt”) of the German Federation of General Practitioners

4 Results

The analysis of the two data sets (physicians/doctors and nursing homes) was performed by using the analysis tools Excel and SPSS. The analysis consists of descriptive statistics, such as frequency calculations and pivot tables. In the period from 01.10.2013 to 31.10.2013 a total of 117 people participated in the survey for doctors/physicians, of which 89 respondents completed the entire questionnaire. In the same period a total of 114 people participated in the survey for care services, of which 88 respondents completed the entire questionnaire.

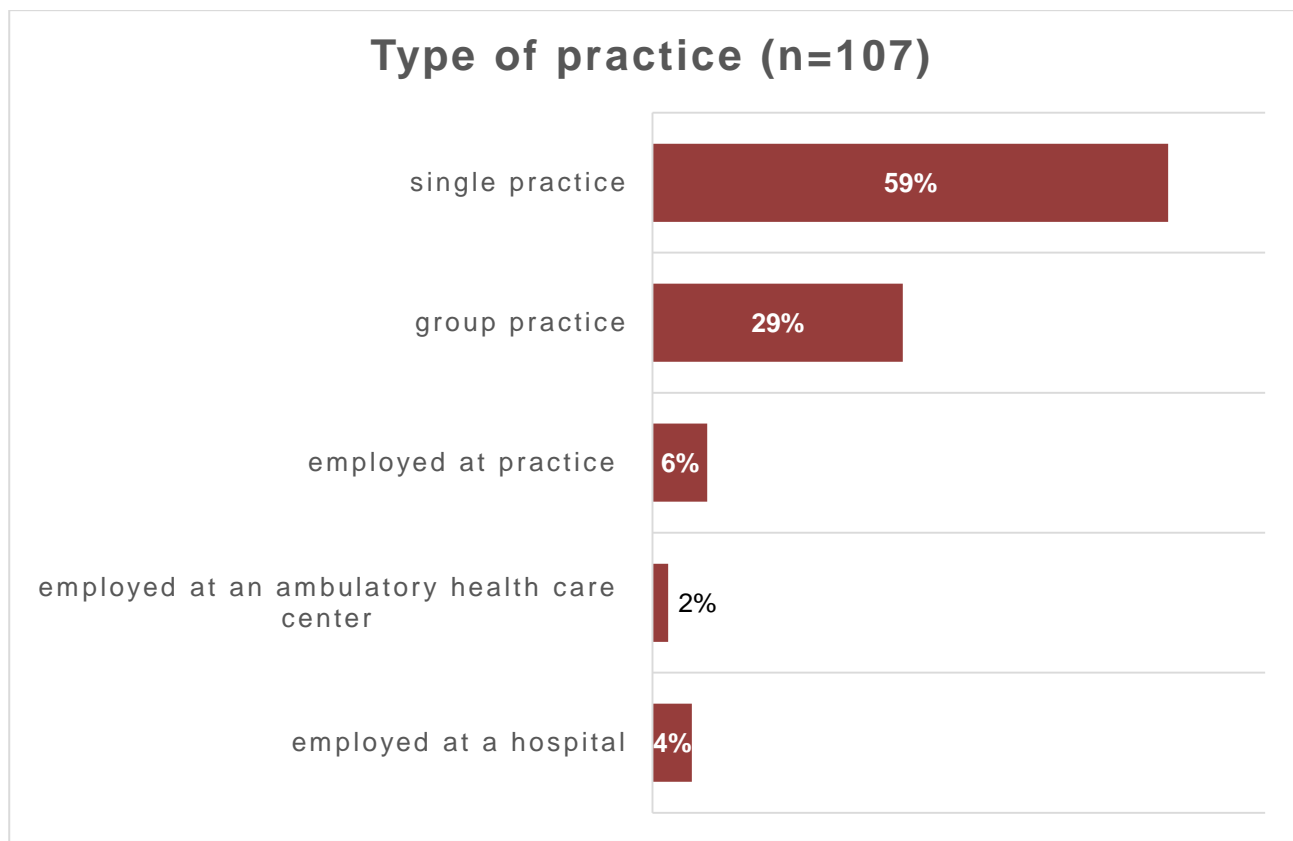
4.1 Evaluation of the doctors and physicians survey

Figure 1: Doctors and physicians survey, professional experience



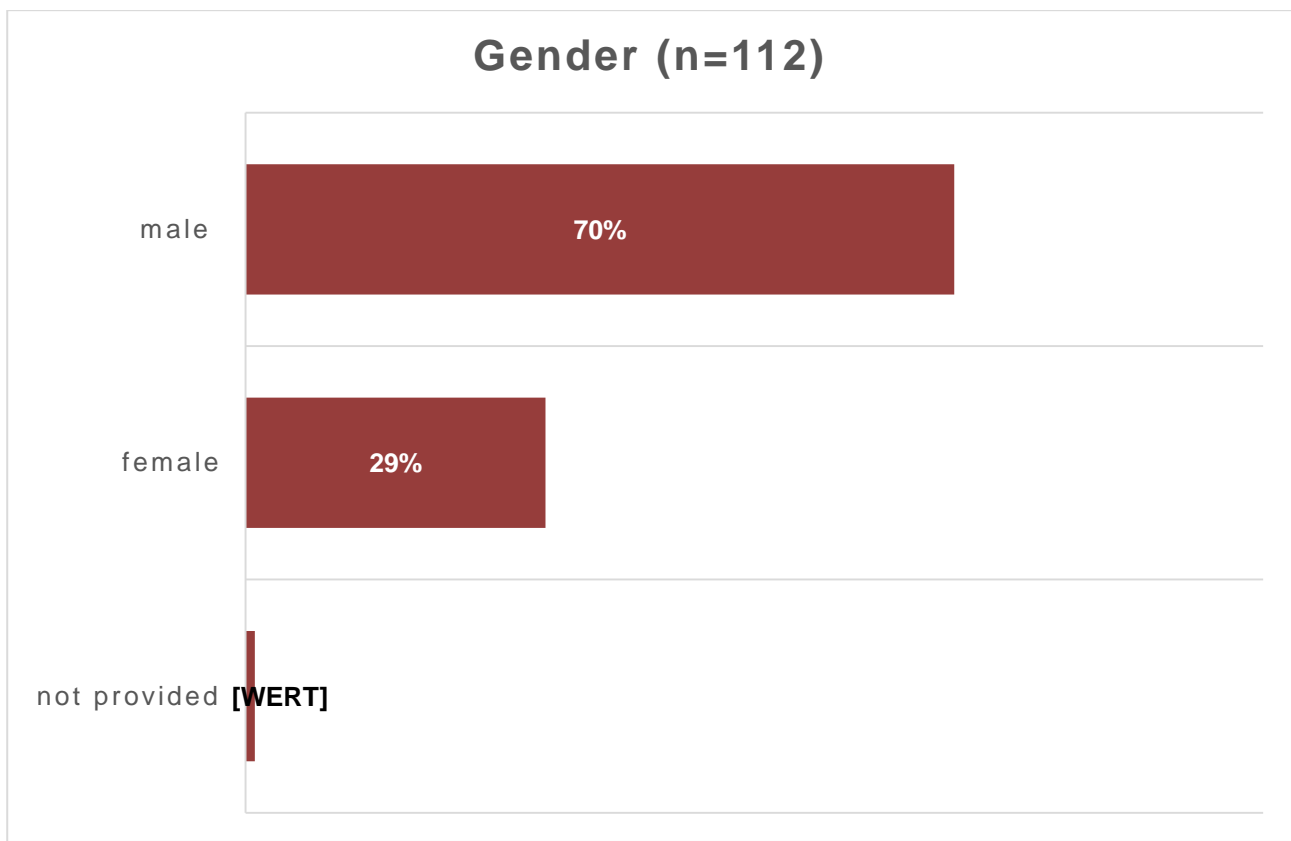
115 out of 117 respondents stated details of their professional experience. 68% of doctors and physicians have therefore more than 10 years of experience, of which 35% have more than 20 years experience. According to their information, a total of 32% have less than 10 years of professional experience, of which 13% have up to 5 years experience.

Figure 2: Doctors and physicians survey, type of practice



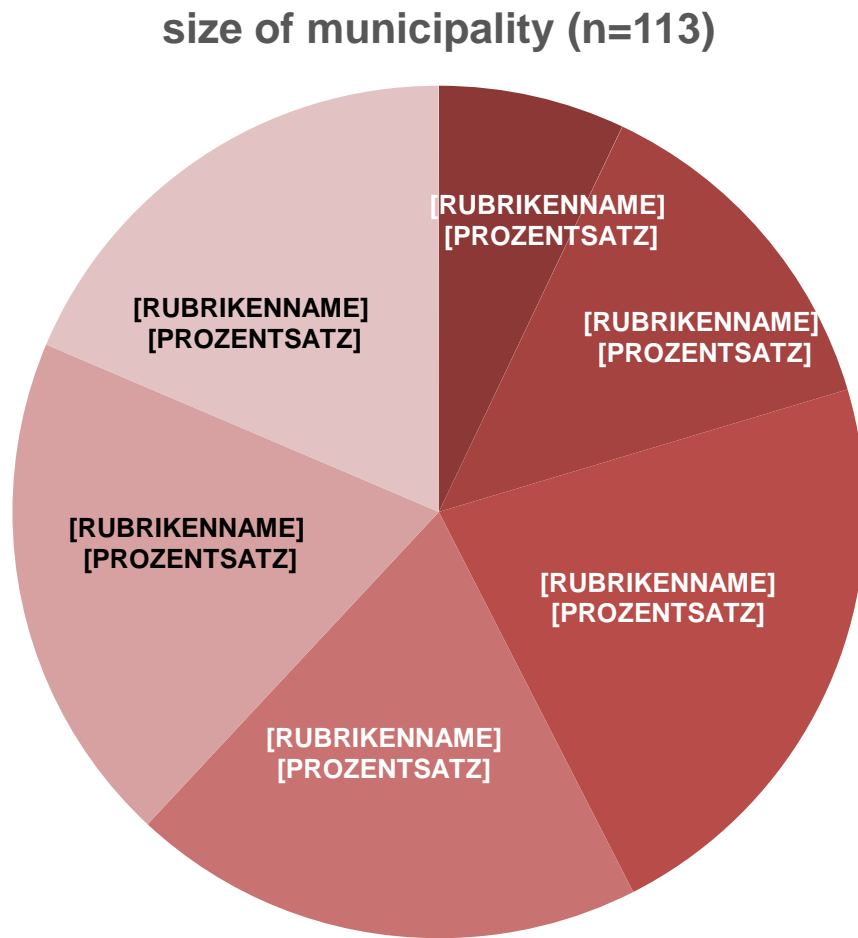
Employed doctors and physicians can be released from some responsibilities, such as administrative tasks. Doctors and physicians in individual surgeries are however accustomed to organising everything themselves, which also includes support that would be available in hospitals, where the staff is able to help one another. With 59%, individual surgeries are the most frequently stated form.

Figure 3: Doctors and physicians survey, gender



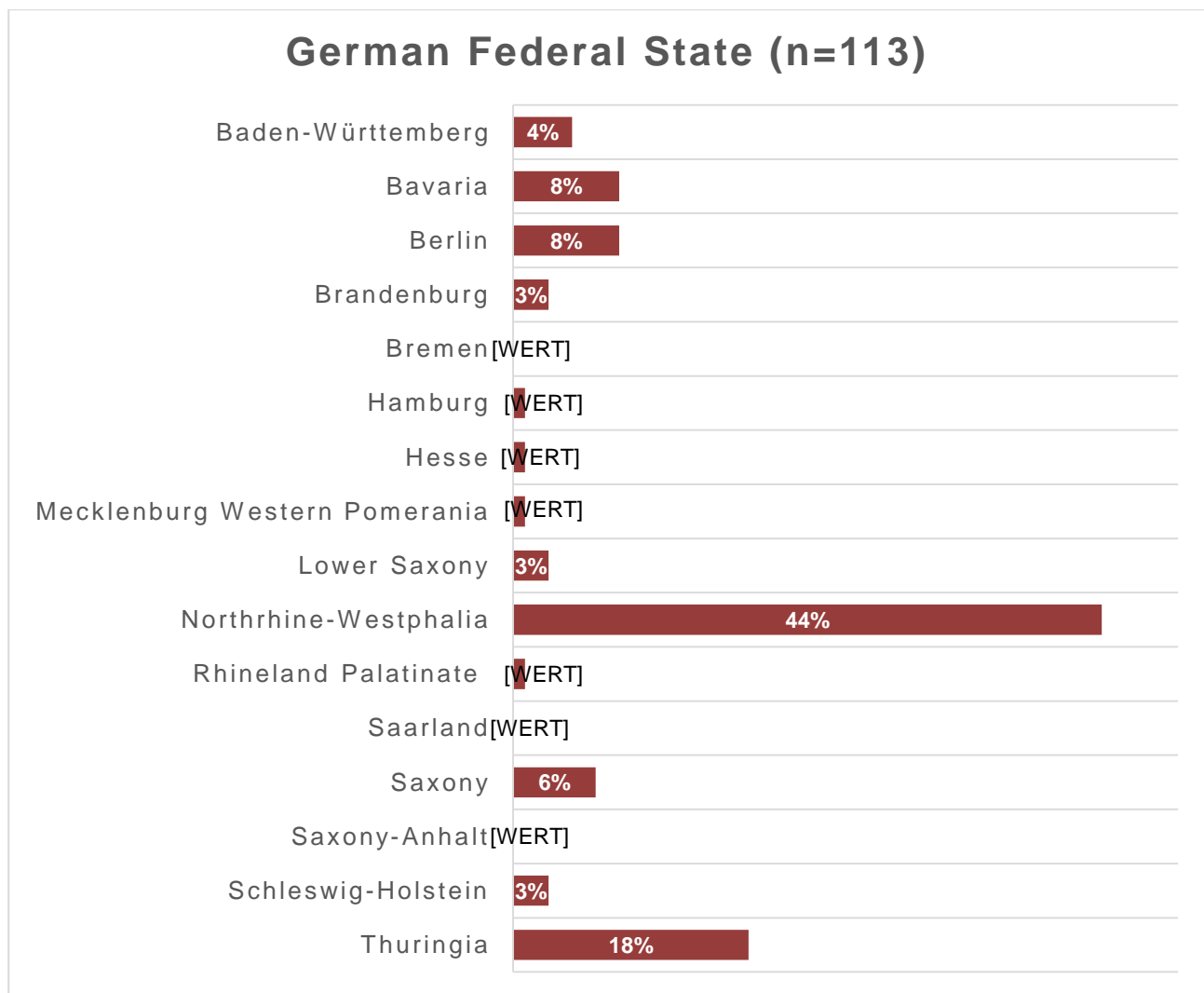
70% of participants in the survey were male doctors, who represented the majority, and 29% of participants were female doctors.

Figure 4: Doctors and physicians survey, size of municipality



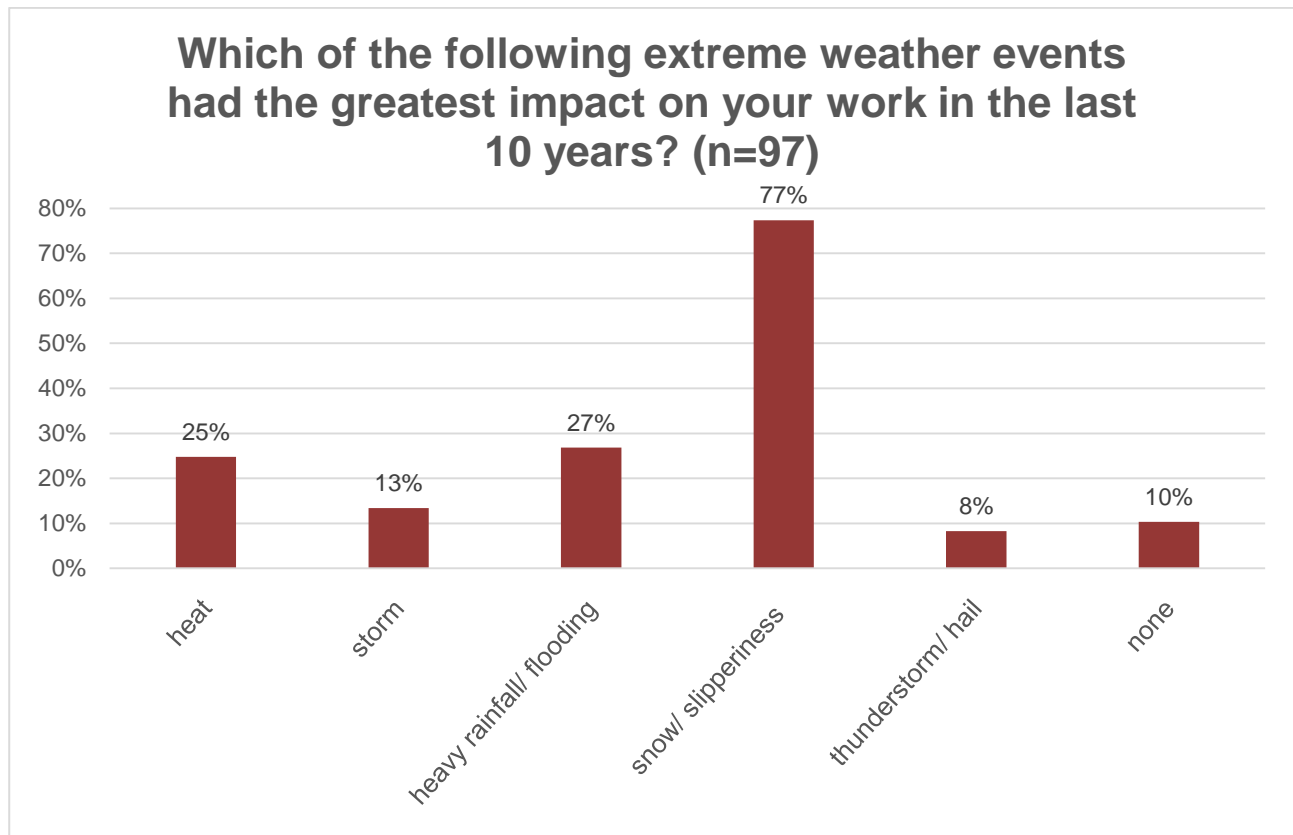
The answers from the survey represent all community sizes, whereas 7% of communities have less than 2,000 inhabitants and represent the smallest group.

Figure 5: Doctors and physicians survey, German Federal State



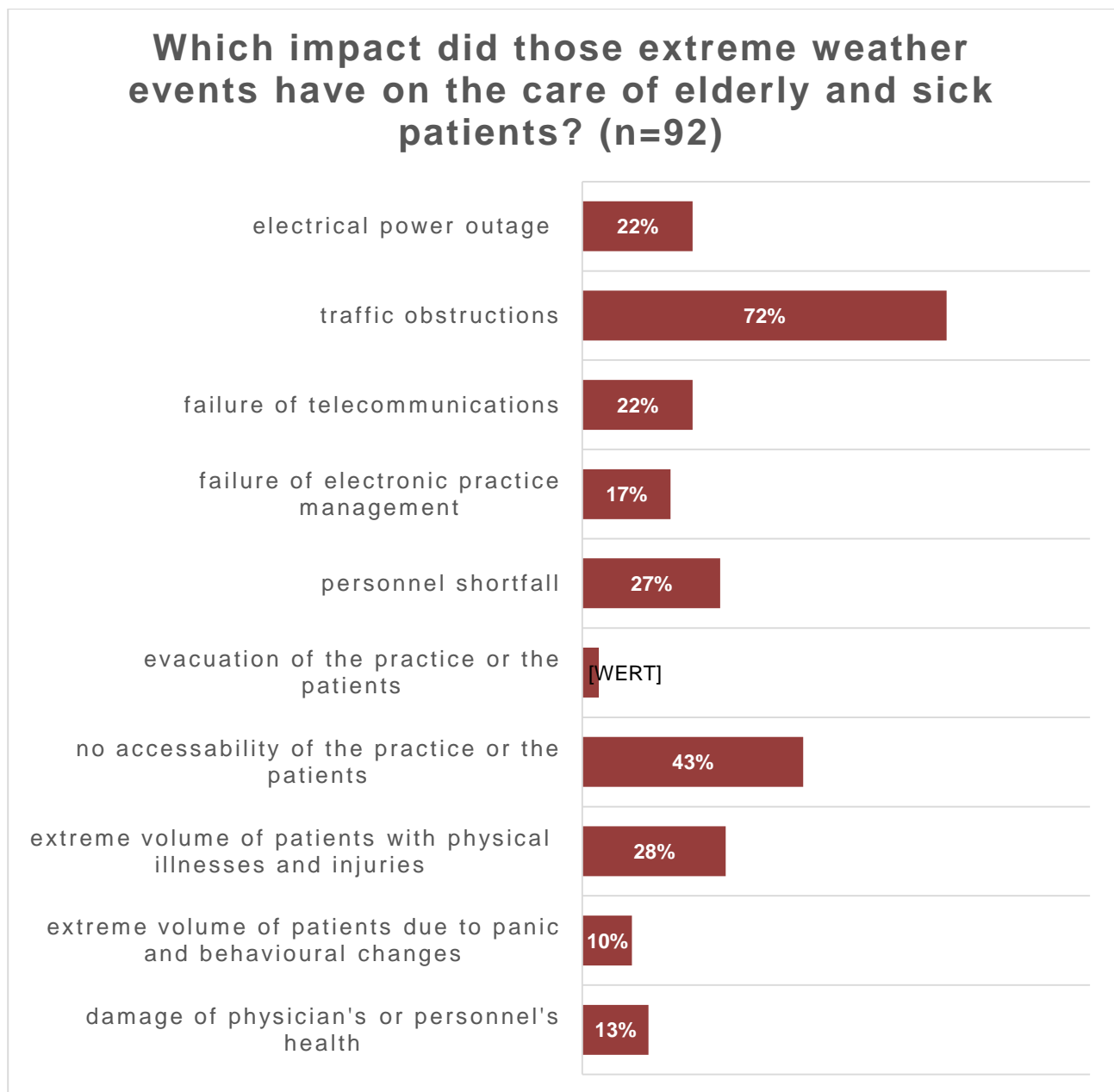
44% of respondents originate from North Rhine-Westphalia, the most populous German Federal State. Thuringia follows with 18%. Despite the different levels of population figures, Berlin and Bavaria each represent 8% of respondents. The remaining German Federal States are each represented with less than 6%.

Figure 6: Doctors and physicians survey, extreme weather events in the last 10 years with the strongest effect on professional activity



Multiple answers were possible for the question “Which of the following extreme weather events had the greatest impact on your work in the last 10 years?”. 61% selected one answer, 22% selected two answers, 10% selected three answers, 4% selected four answers and 1% selected all response categories. The impacts of snow/slipperiness clearly dominate with 77%. For further analysis the binary logistical regression analysis was used to check, whether the answers to the question blocks “During extreme weather events ...”, “would be particularly serious...” and “plans and preparations for extreme weather events” relate to snow/slipperiness. However, this analysis did not show significant results ($p > 0.05$). Thus, the following answers relate to all extreme weather events.

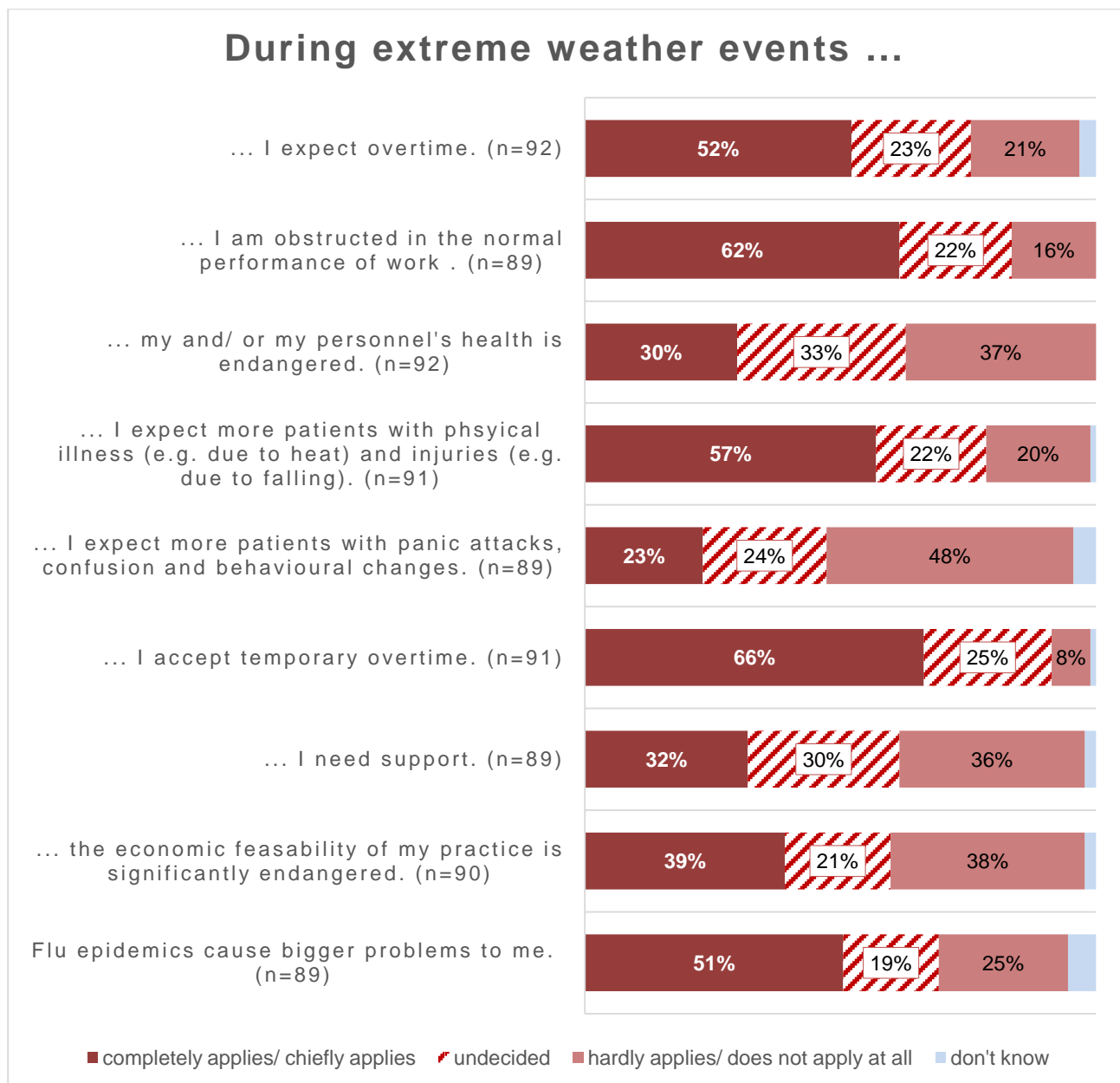
Figure 7: Doctors and physicians survey, effects



Traffic obstructions represent the most common effects of extreme weather events on the care of elderly and sick patients (72%). In addition, 43% of surveyed doctors and physicians indicated that they were unable to reach their surgery or the people in need of care. The pivot table analysis shows that 27% have chosen both answers. Also 27% stated personnel shortfall as an impact, whereas 14% selected traffic obstruction and personnel shortfall.

An extreme volume of patients with physical illnesses and injuries was mentioned by 28% whereas 10% stated panic and behavioural changes. 4% of respondents chose both answer options.

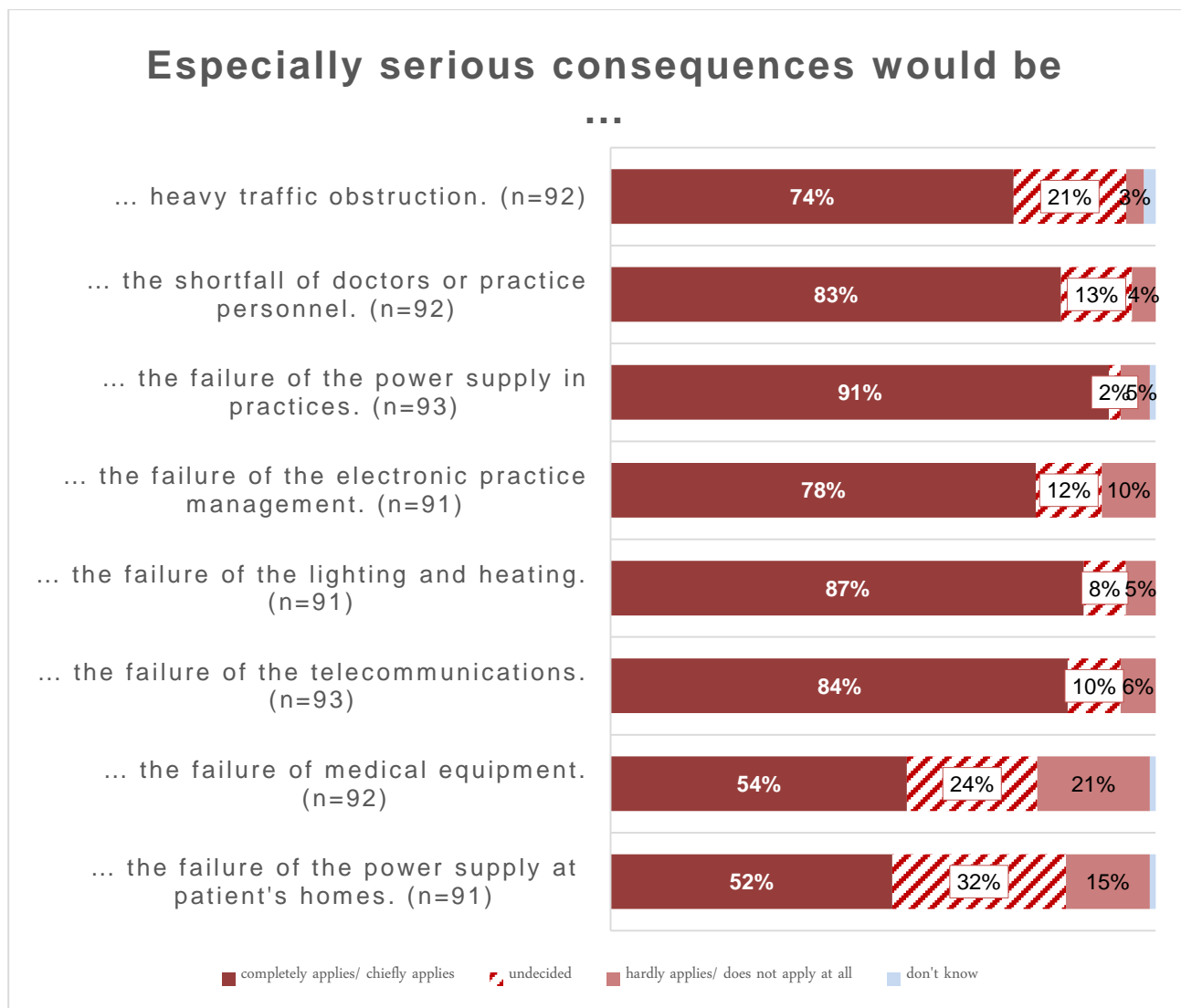
Figure 8: Doctors and physicians survey, consequences of extreme weather events



This shows that 52% of surveyed doctors and physicians expect overtime during extreme weather events and 66% accept temporary overtime. Based on the Spearman correlation analysis, these two answers have however no significant correlation ($p=0.3$).

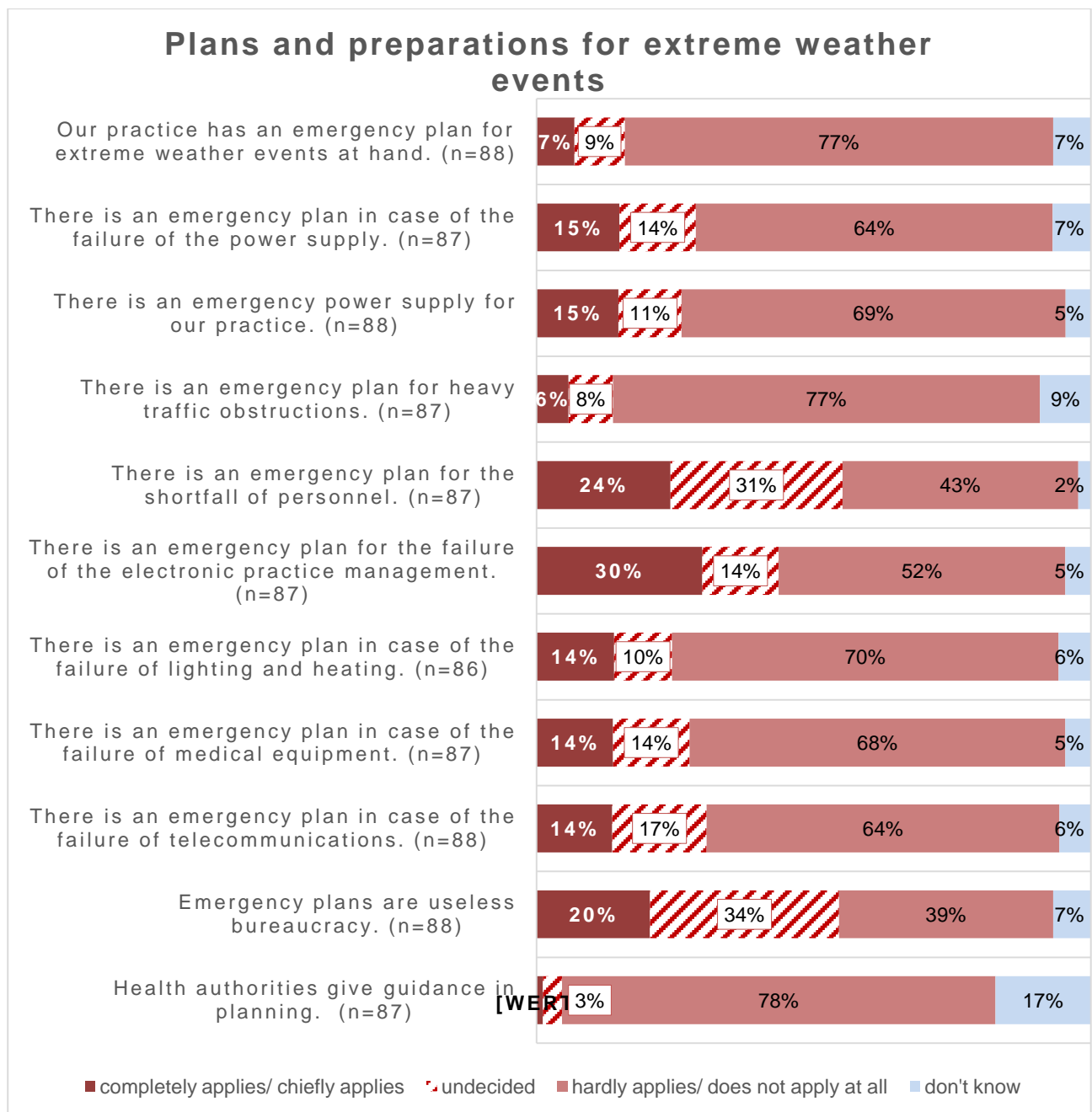
With 62%, the obstruction of the normal performance of work represents another impact of extreme weather events. 57% of respondents indicated that they expect more patients with physical disorders. 51% stated that flu outbreaks are more problematic than extreme weather events.

Figure 9: Doctors and physicians survey, especially serious consequences



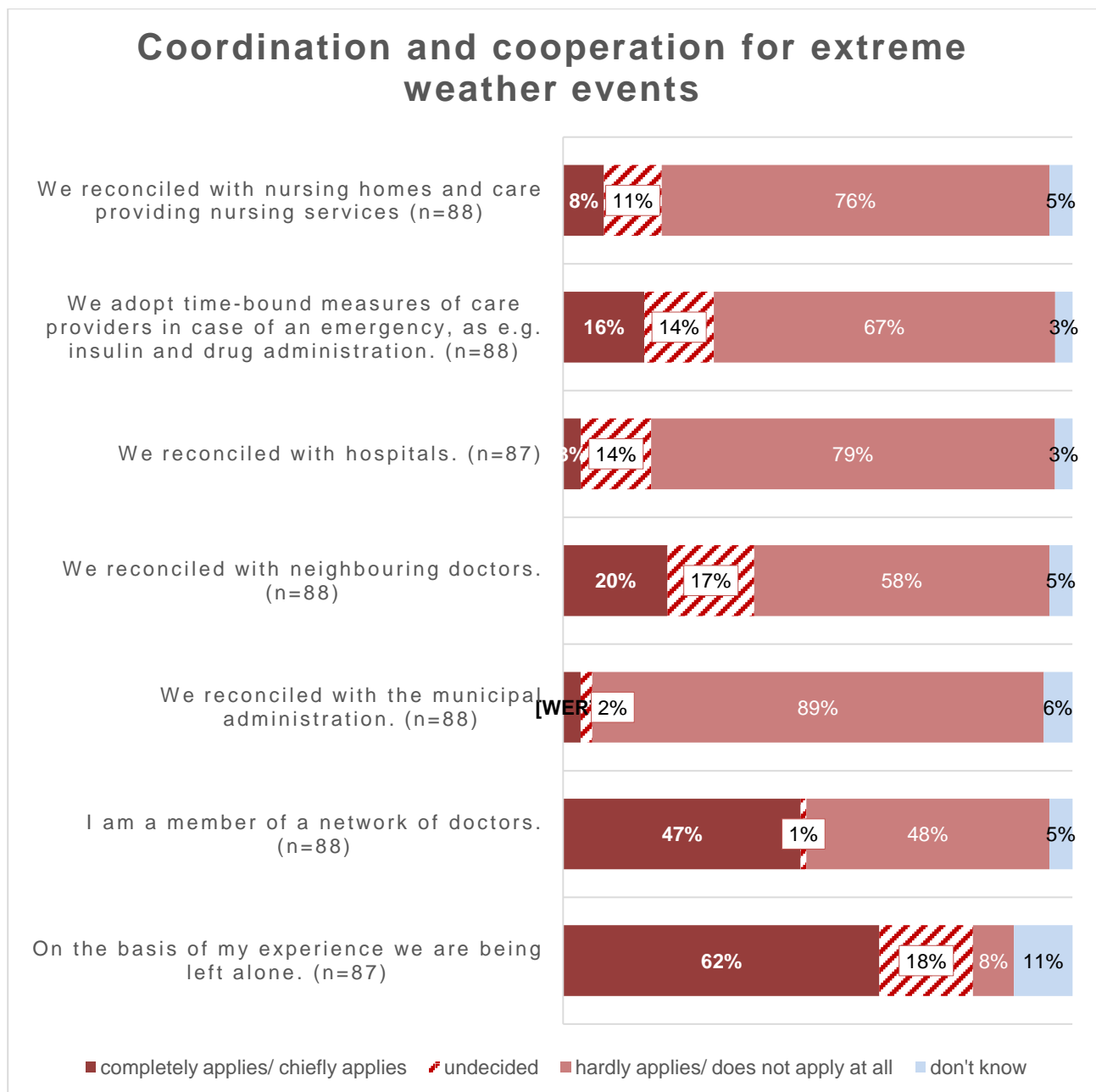
Particularly serious consequences can be identified in all responses. With an approval rating of 91% a failure of the power supply in surgeries was viewed as most serious, followed by the failure of the lighting and heating with 87% and the failure of the telecommunications with 84%.

Figure 10: Doctors and physicians survey, plans and preparations



20% of the surveyed doctors and physicians confirmed the statement that plans are useless bureaucracy. On average, 14% indicated that they have emergency plans for various scenarios in place.

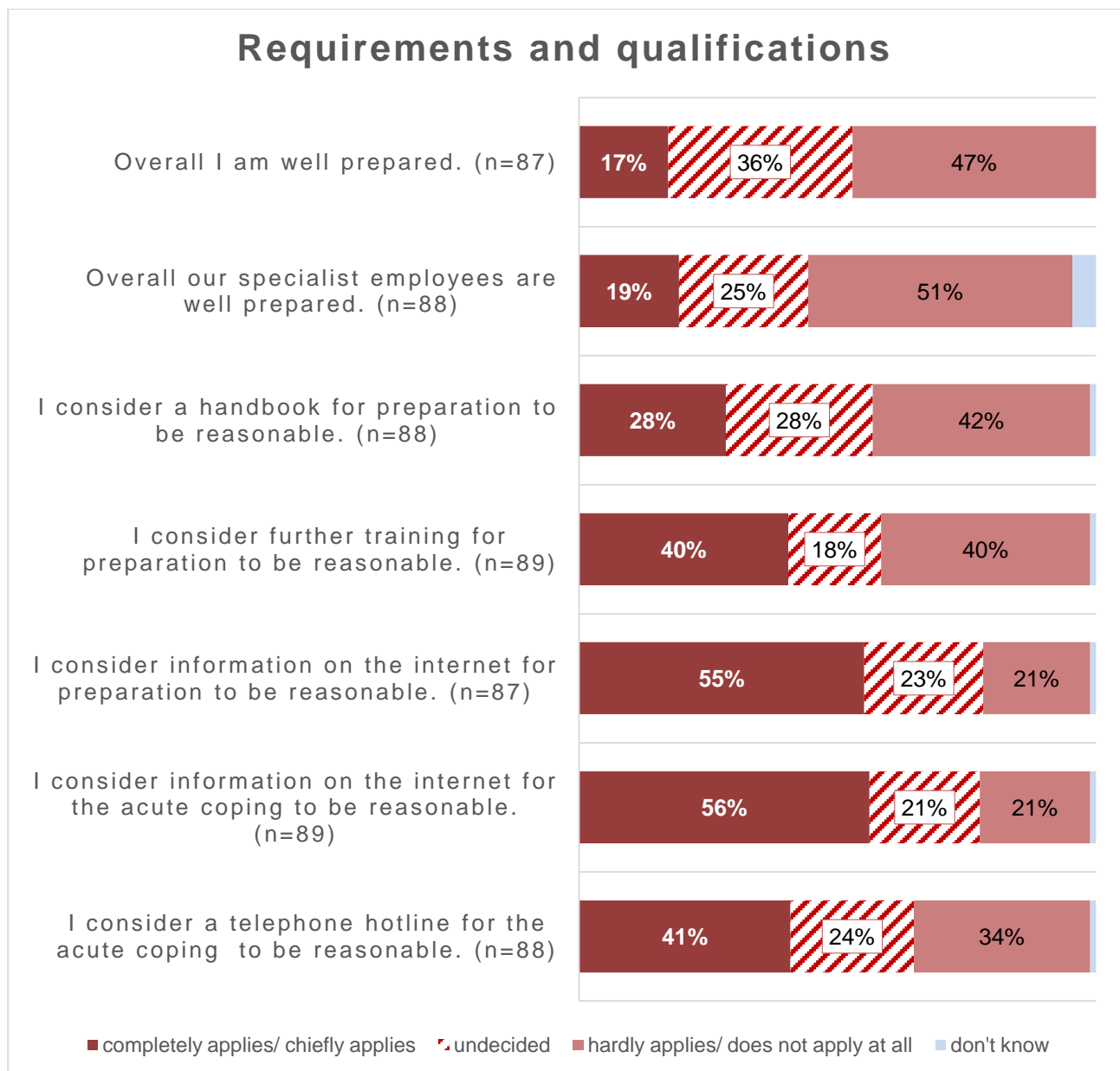
Figure 11: Doctors and physicians survey, coordination and cooperation



About 16% of doctors and physicians indicated that they adopt time-bound measures of care providers provided in case of an emergency. A reconciliation with nursing homes or care providing nursing services was only stated by 8%. 5% of respondents agreed to both answer options.

20% indicated that they are interconnected with each other. Cooperation and coordination with hospitals hardly exists or does not exist at all. 89% of doctors and physicians indicated that they are not coordinated with municipal administrations. 62% confirmed the statement of being left alone during extreme weather events.

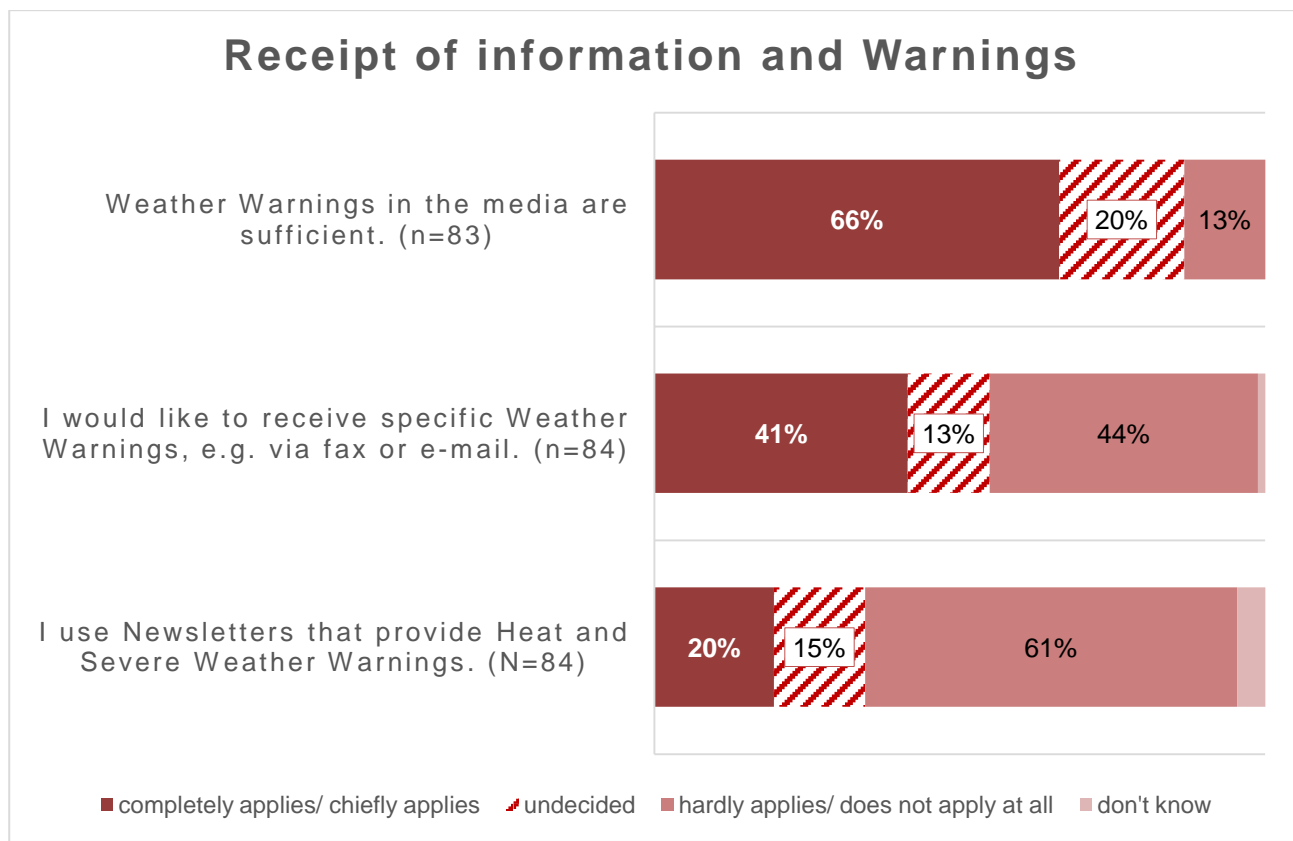
Figure 12: Doctors and physicians survey, requirements and qualifications



17% of doctors and physicians reported to be well prepared for extreme weather events and their consequences. 19% also stated that their specialised staff is well prepared.

55% consider Internet information, 40% training and 28% consider a handbook to be appropriate in order to prepare for extreme weather events. 56% consider information on the Internet and a telephone hotline as useful for the acute coping of such events.

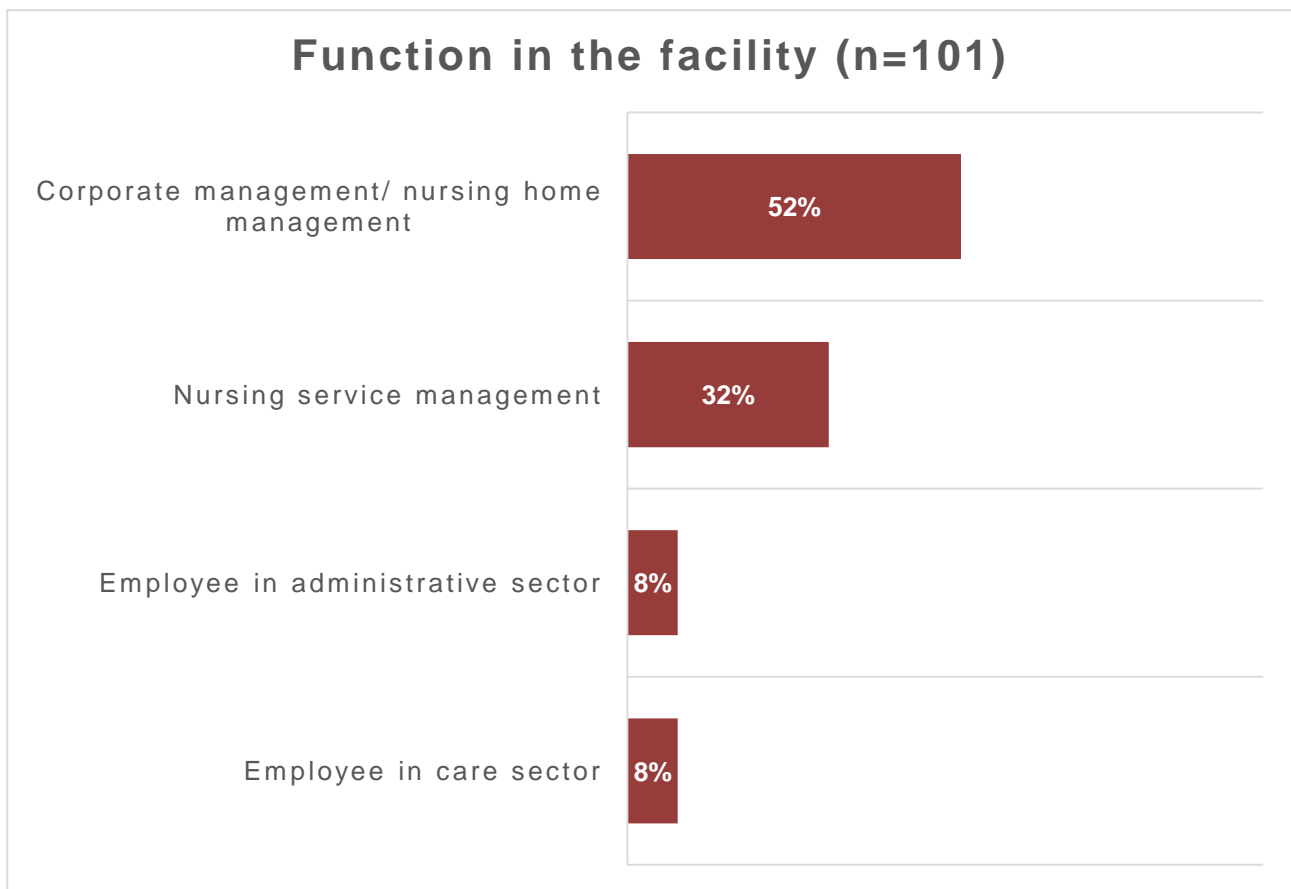
Figure 13: Doctors and physicians survey, receipt of information and Warnings



66% of the doctors and physicians surveyed indicated that Weather Warnings in the media are sufficient. 20% reported using Newsletters that provide Heat and Severe Weather Warnings.

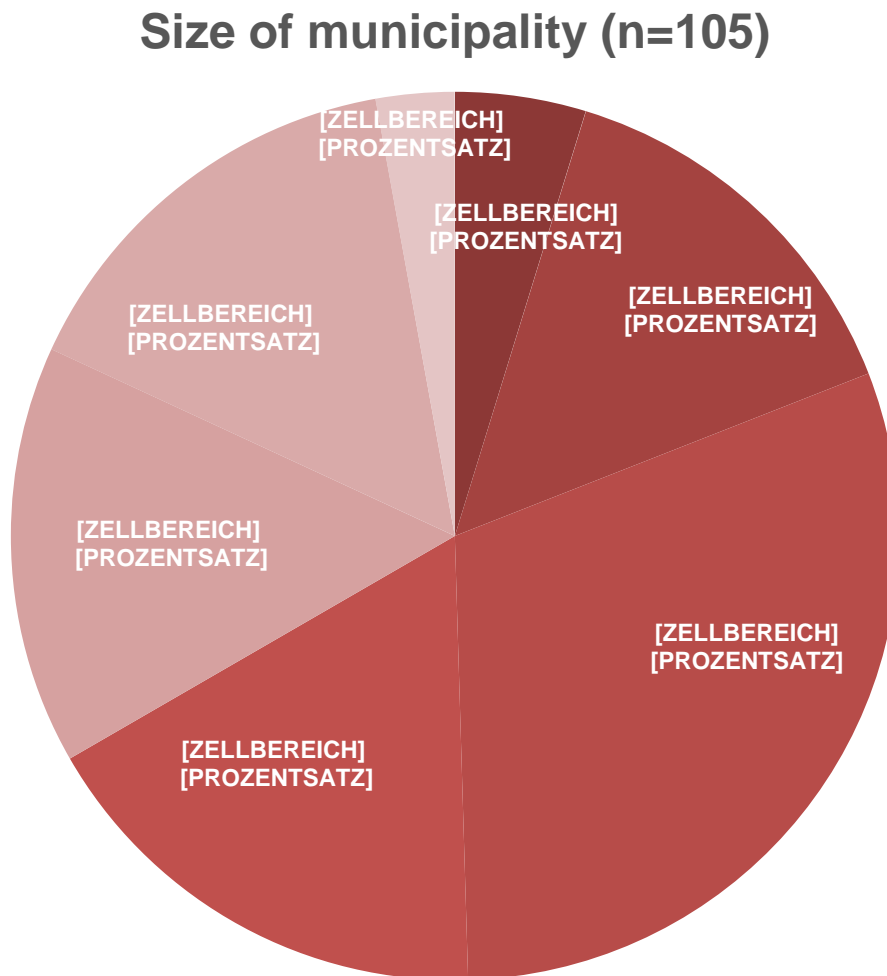
4.2 Evaluation of the Care Survey

Figure 14: Care survey, function



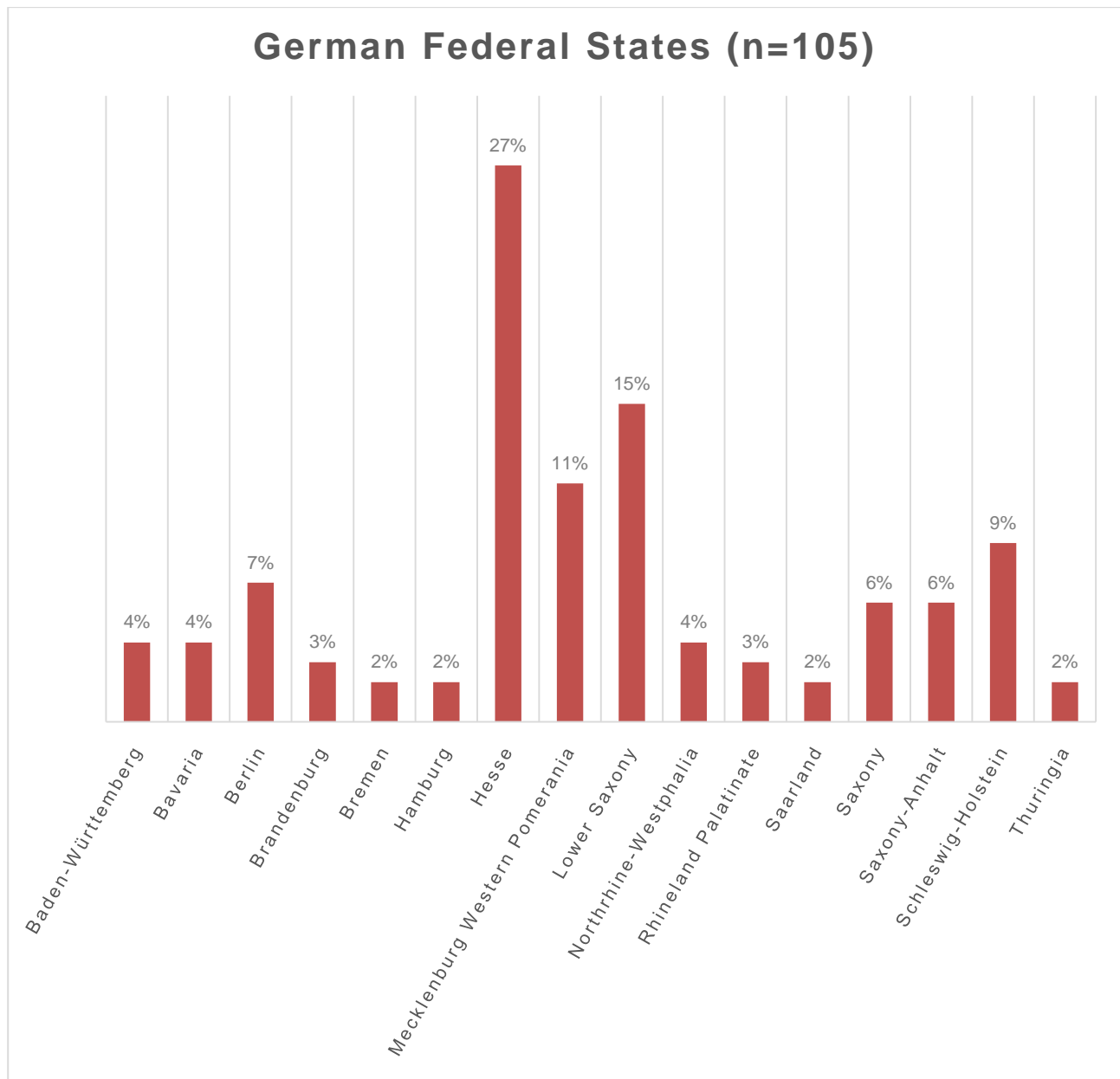
More than half of respondents are in a management function. 52% stated that they are working in corporate management or in nursing home management. Another 32% act as nursing service management. And 8% stated to be employees in administrative and care sectors.

Figure 15: Care survey, size of municipality



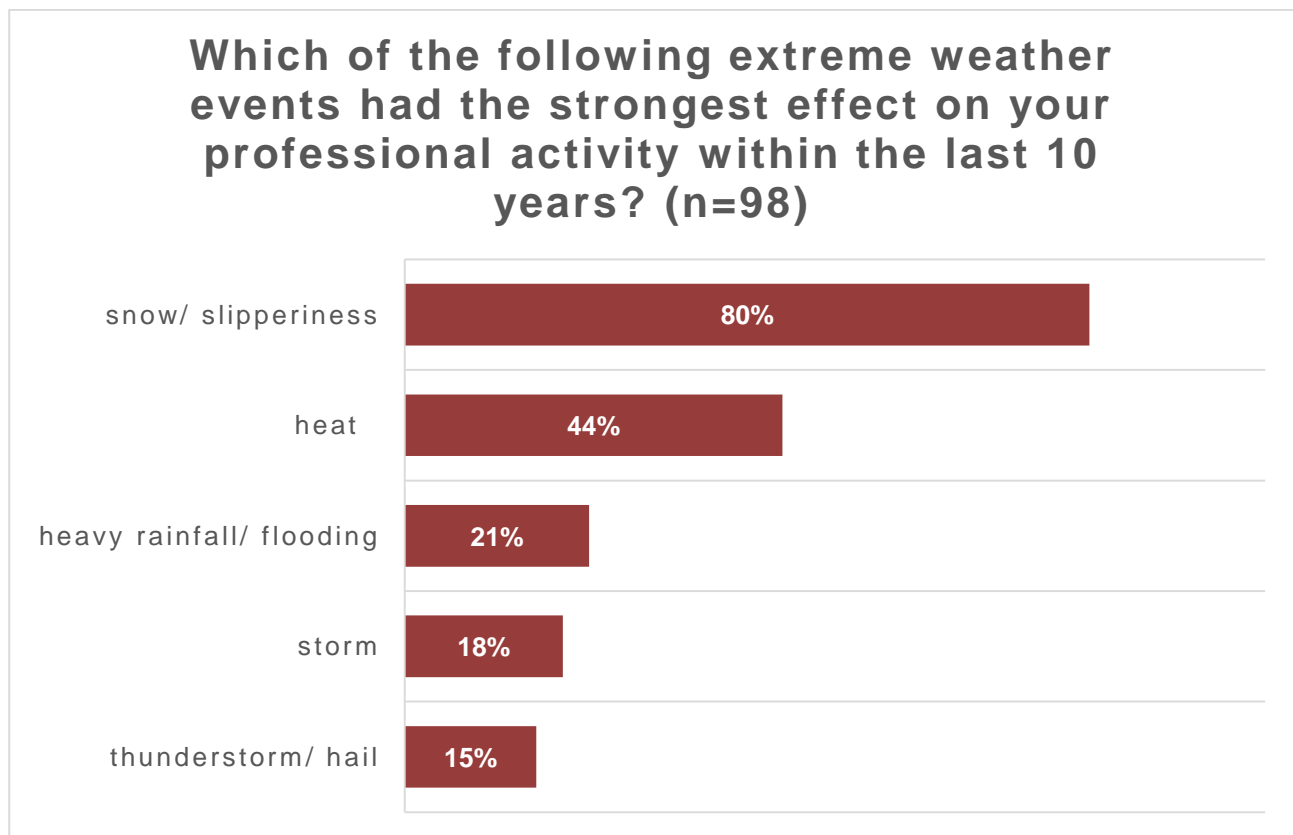
Similarly to the doctors' survey, all sizes of municipalities are similarly represented in this survey. With 31%, municipalities with a population of up to 20,000 were most frequently indicated. A community size of less than 2,000 inhabitants was selected by 5%; representing the smallest group.

Figure 16: Care survey, German Federal States



This question allows the selection of several Federal States. However, all respondents selected just one answer. 27% of nursing staff provides care service to patients in the State of Hessen, and hence, this State was most frequently stated. North Rhine-Westphalia follows with 15% and Mecklenburg-Western Pomerania with 11%.

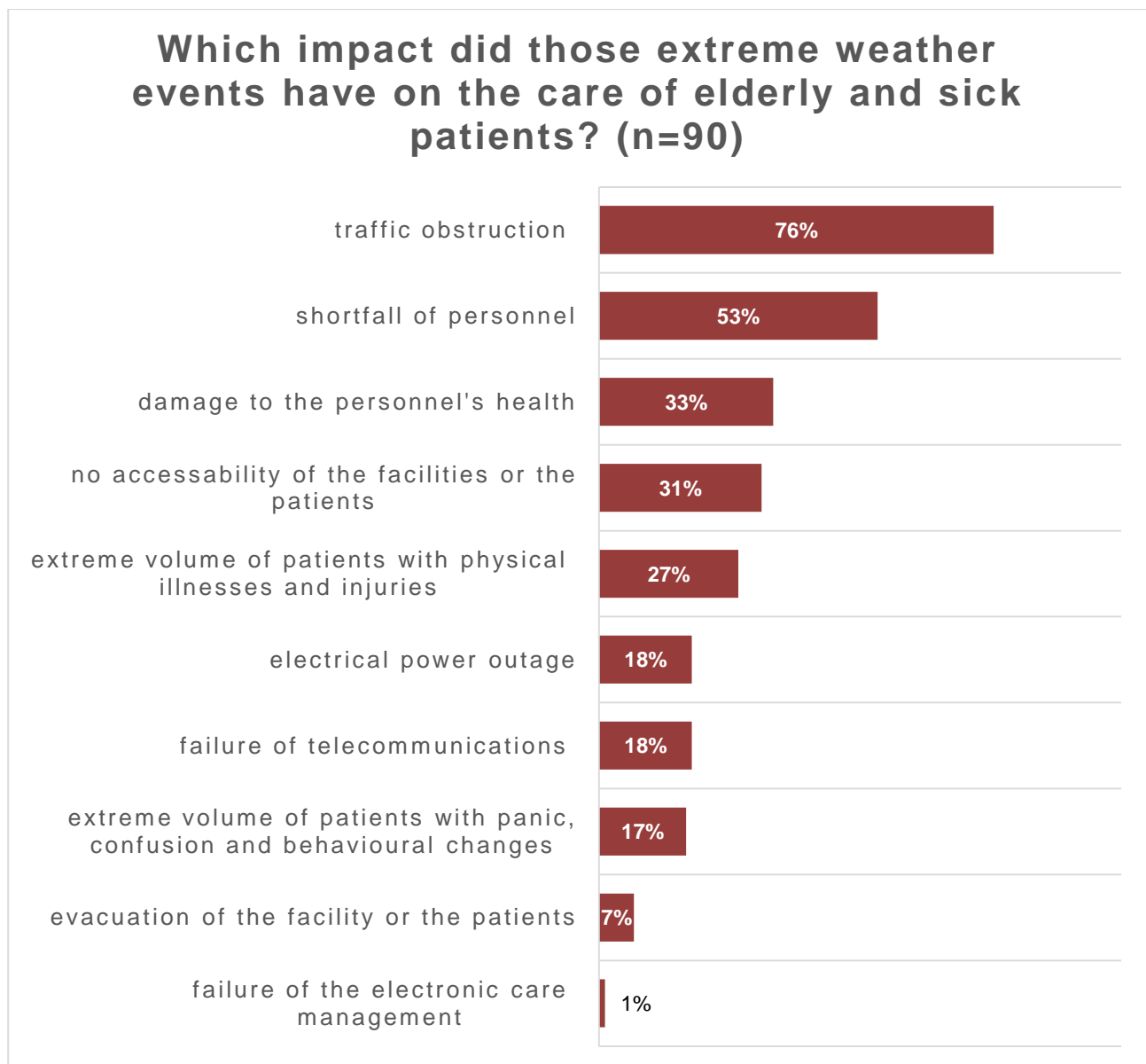
Figure 17: Care survey, extreme weather events in the last 10 years with the strongest effect on professional activity



Again, several answers could be given. 45% of the nursing staff selected one answer, 33% selected two answers, 11% selected three answers, 8% selected four answers and 1% selected all response categories.

As stated by doctors and physicians, also in the care sector, snow/slipperiness was most frequently cited as an extreme weather event (80%). Heat is another extreme weather event that was frequently cited by the care and nursing staff (44%). It is not possible in this survey to determine whether the answers of the following questions relate to a specific extreme weather event, by means of a binary logistical regression analysis. Due to the integrated branch logic of this questionnaire, the basic populations are too small for such analysis.

Figure 18: Care survey, effects



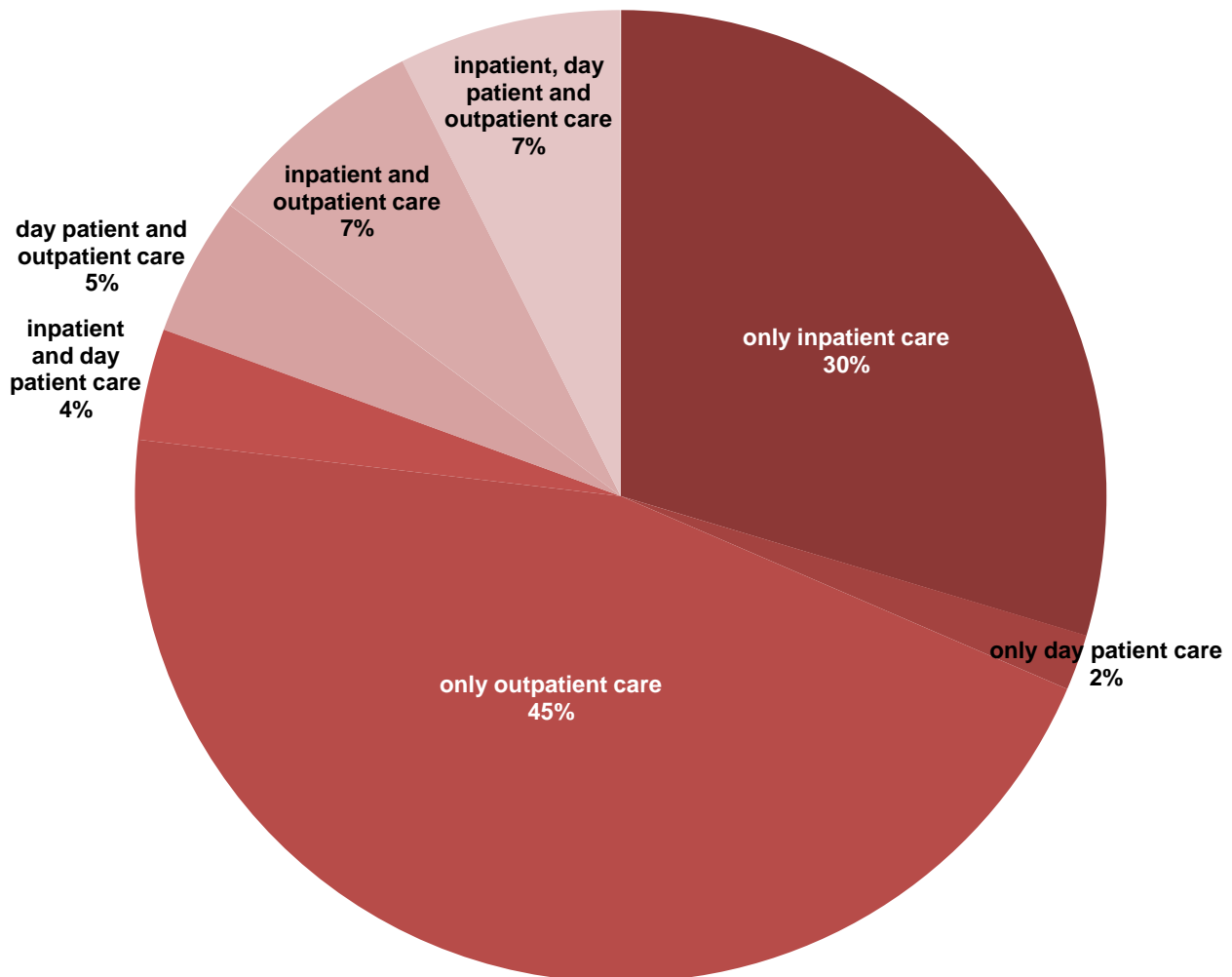
This question allowed the selection of up to ten answers. Of the nurses surveyed, 13% gave one answer, 42% provided two answers, 17% gave three answers, 16% provided four answers, 7% gave five answers, 2% provided six answers and 3% gave seven answers.

In the survey of doctors, traffic problems were mentioned (76%) as the most common effect of extreme weather events.

53% said that extreme weather events have led to personnel shortfall. A further 33% said that the health of employees was damaged. The pivot table analysis shows that 18% of nurses selected both answers (personnel shortfall and damage to health).

Figure 19: Care survey, type of care

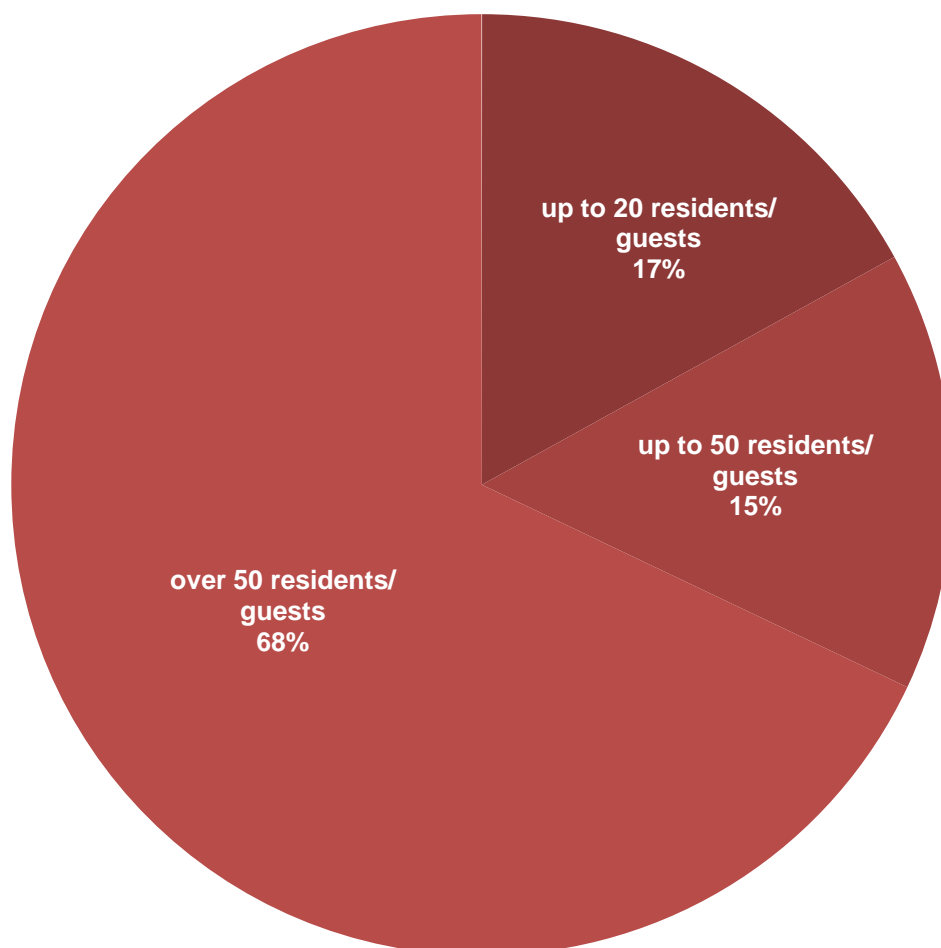
What kind of care do you provide? (n=109)



45% of participants offer outpatient care only. 30% work in purely inpatient facilities. When considering all inpatient and outpatient facilities, it reveals that this type of care is offered by a total of 36%. 7% of respondents offer all three types of care.

Figure 20: Care survey, residential and day-care facilities: Number of places

How many places do you provide in your facility? (n=53)

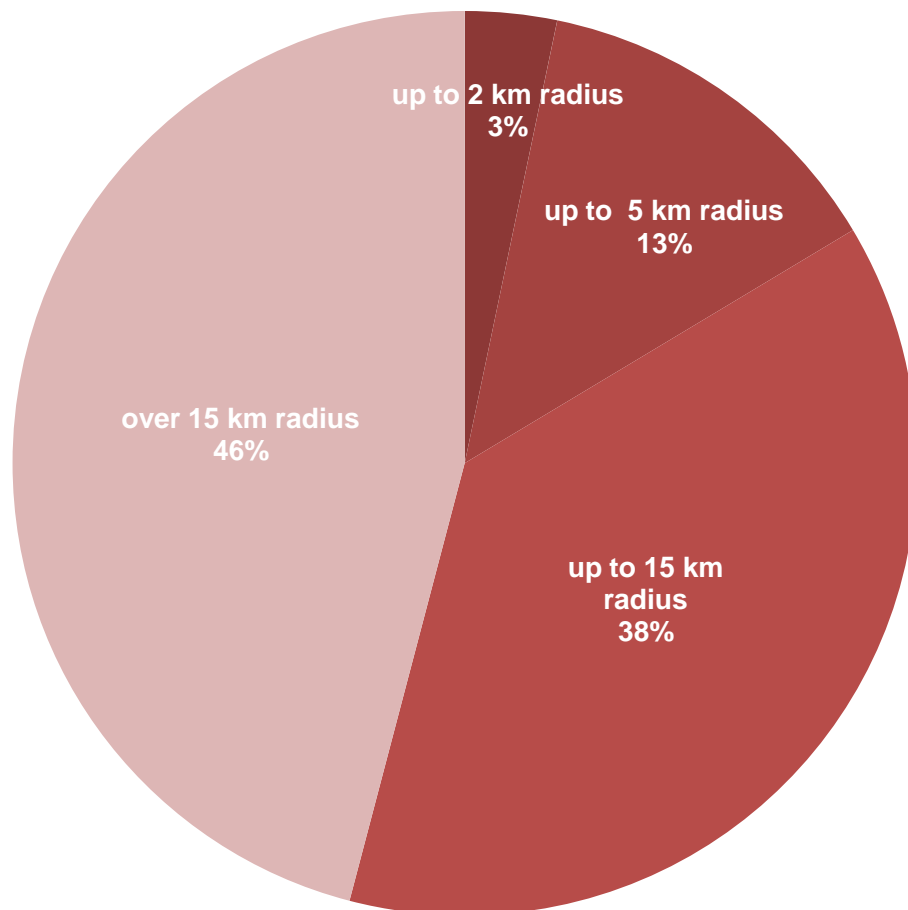


The data of the corresponding two questions of the questionnaire (7 and 9) were summarised and jointly analysed, in order to obtain an evaluation of all institutions that provide inpatient and/or outpatient care.

68% of respondents indicated that they are able to offer residents and guests more than 50 places in their facility. 17% have less than 20 places and 15% have less than 50 places.

Figure 21: Care survey, home care services: driving routes

How do you have to travel in order to provide care to your patients? (n=61)

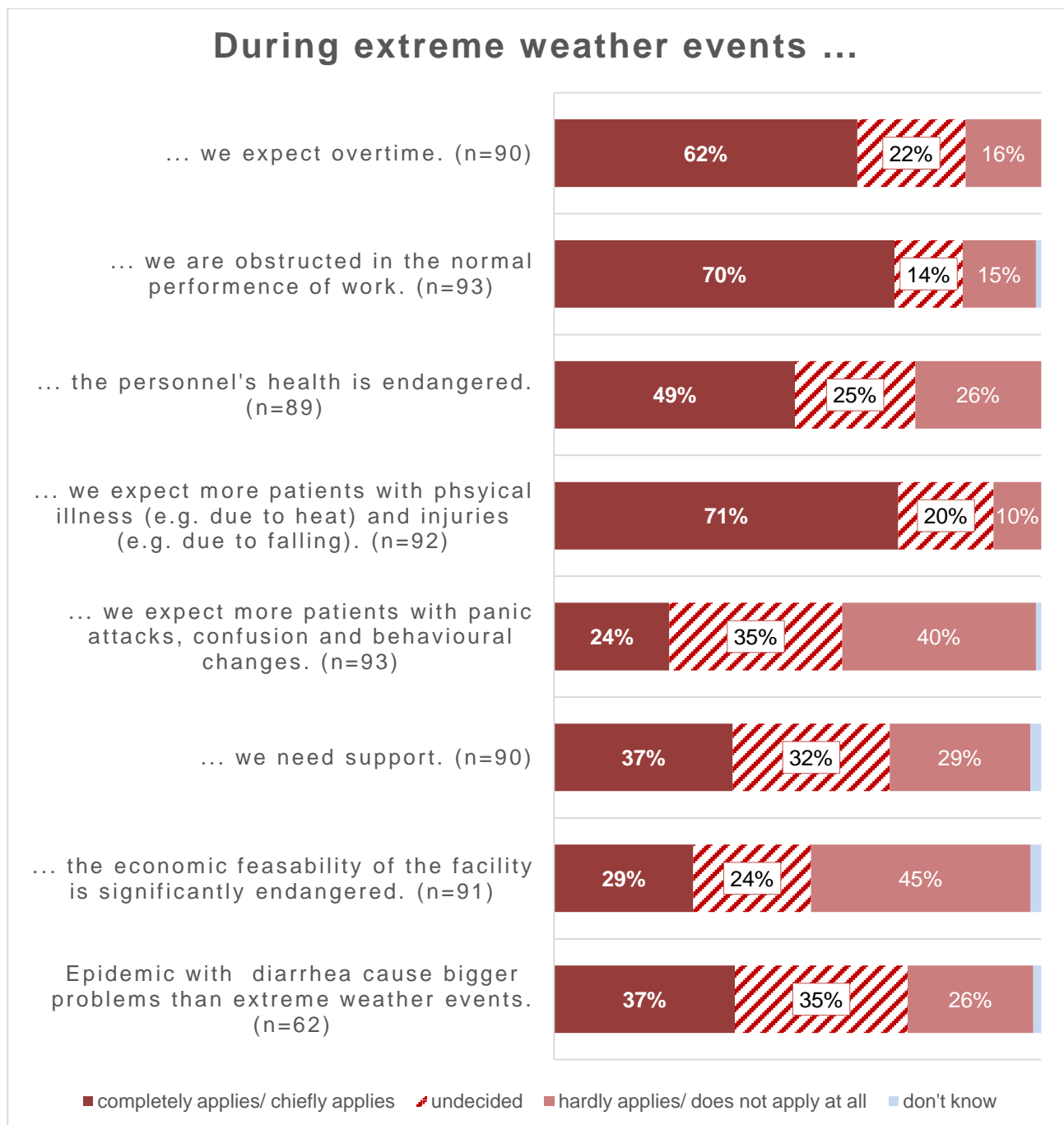


The corresponding two questions of the questionnaire (8 and 10) were summarised and jointly analysed, in order to obtain the number of outpatient care providers from all respondents. The customers of 46% of home care services live in a radius of about 15 km.

38% stated that they have to travel up to 15 km to visit their customers.

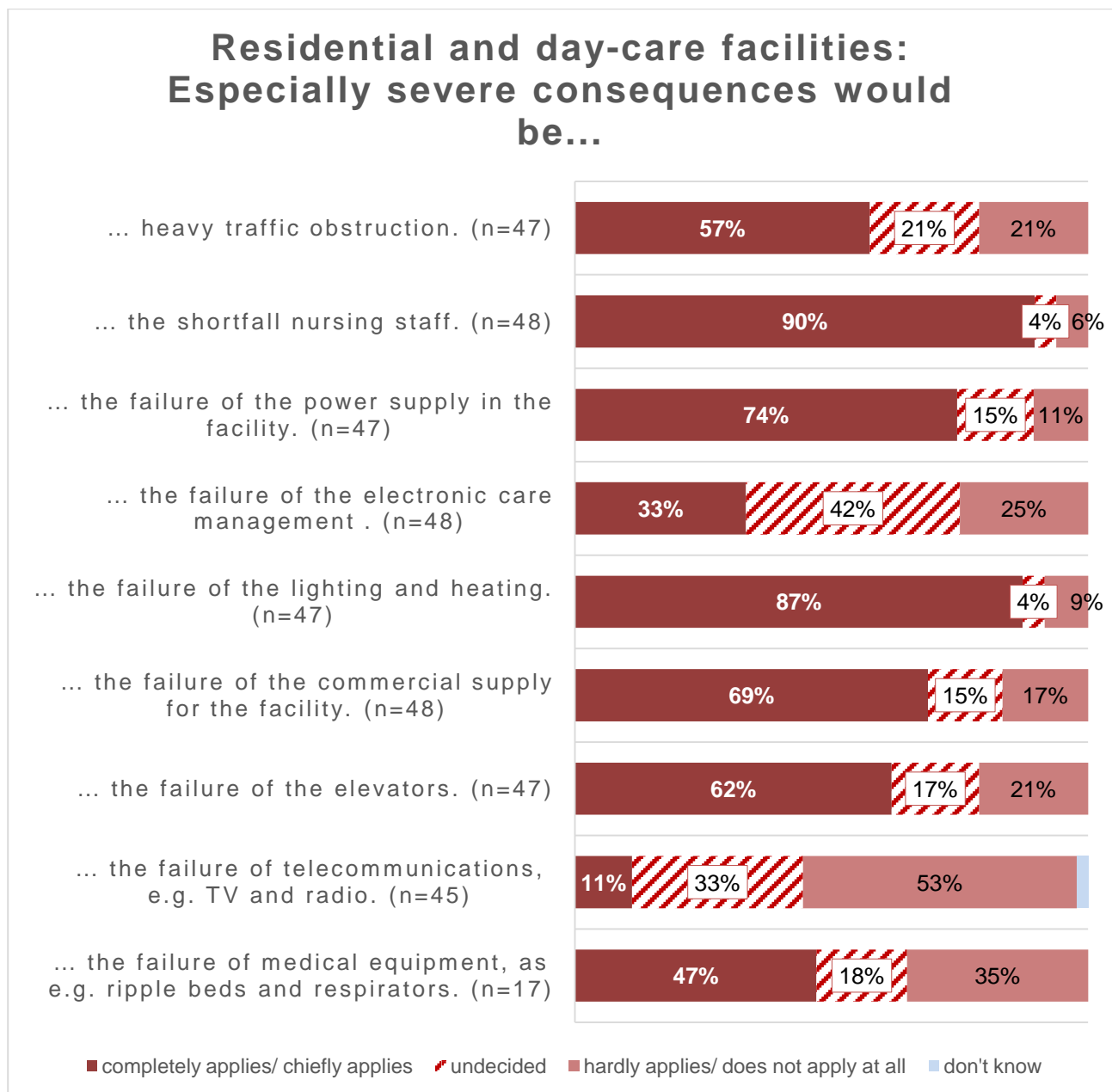
Another 13% said that they have to travel up to 5 km to visit their customers. 3% of respondents provide outpatient care within a radius of 2 km.

Figure 22: Care survey, consequences of extreme weather events



The corresponding three questions of the questionnaire (11, 14 and 16) were summarised and jointly analysed, in order to obtain an overall evaluation for this topic. 62% of respondents agreed to expect more work during extreme weather events. 71% of nurses expect additional physical disorders and injuries of patients. Another consequence of the extreme weather events stated in the document at hand relates to obstructions to normal work (70%). In addition, 49% assume health risks for people providing care.

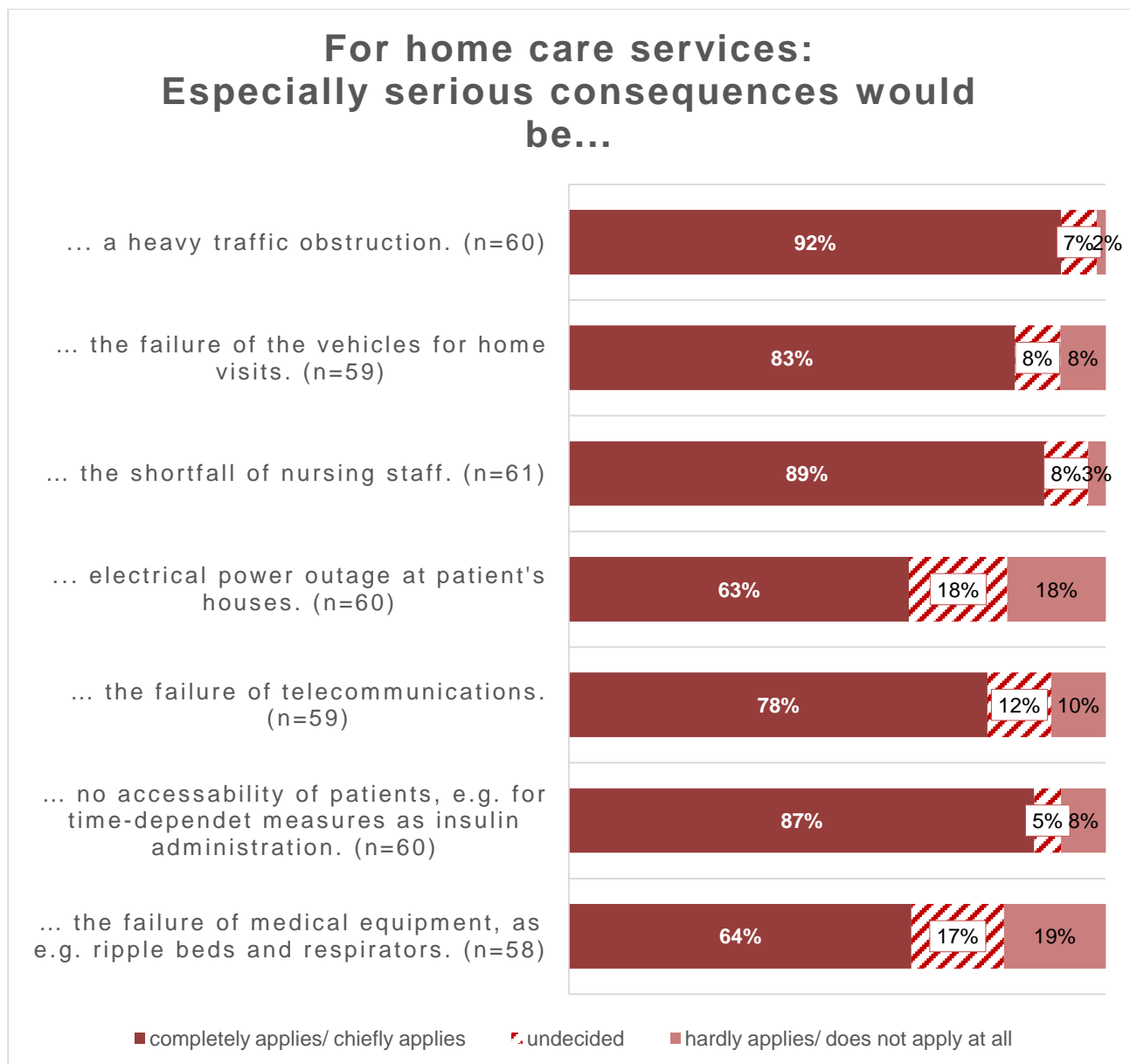
Figure 23: Care survey, residential and day-care facilities: especially severe consequences



The data of the corresponding two questions of the questionnaire (12 and 15) were summarised and jointly analysed, in order to evaluate the question of how serious certain consequences of extreme weather events would affect all facilities offering inpatient and/or outpatient care.

Most nurses of inpatient and outpatient care facilities agreed with the statement that the shortfall of nursing staff would be particularly serious (90%). 87% of the respondents agree that other serious consequences of extreme weather events would be the loss of lighting and heating and for 74% the loss of power in the care facilities represents another serious consequence.

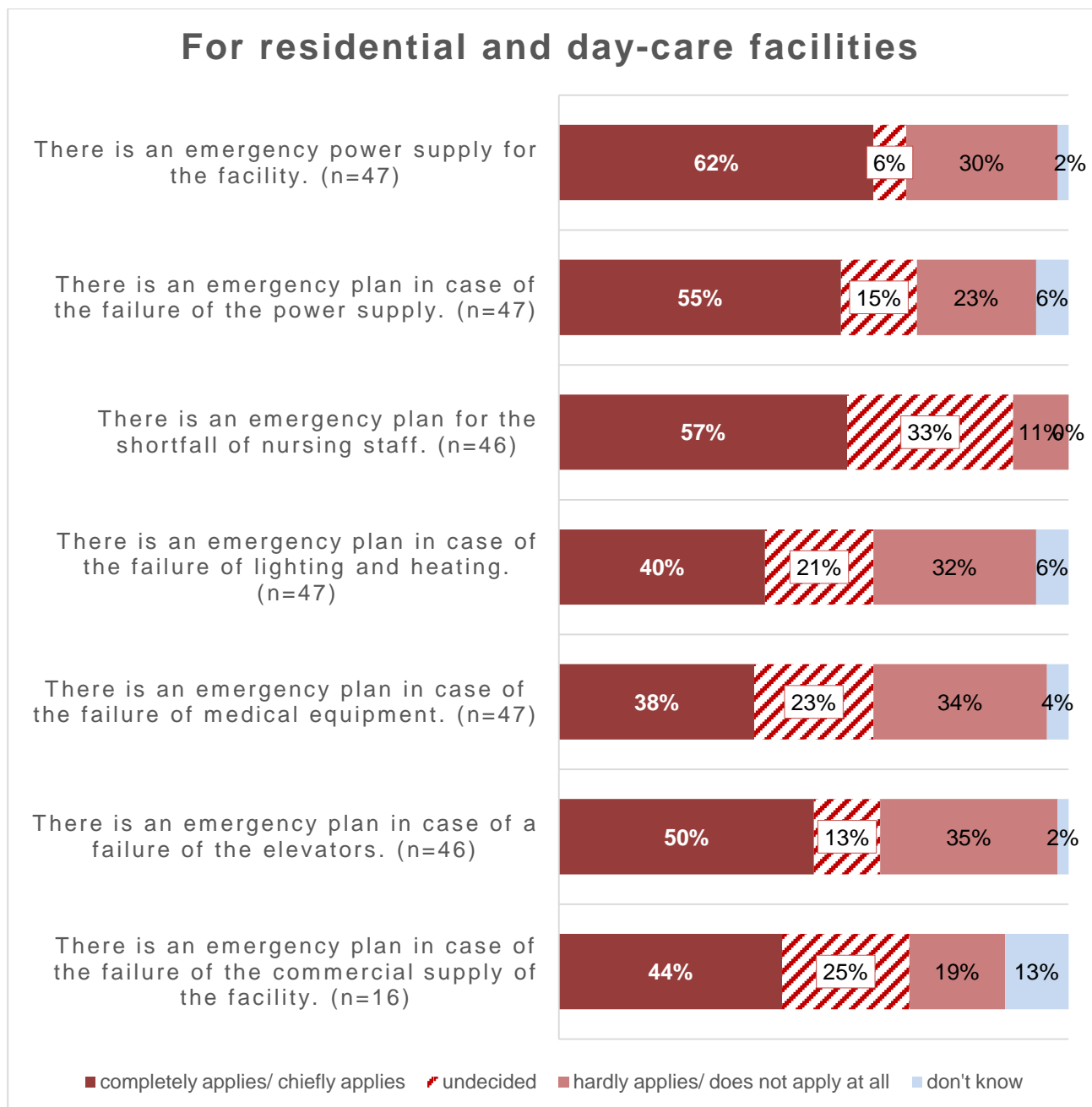
Figure 24: Care survey, home care services: especially serious consequences



The corresponding two questions of the questionnaire (13 and 17) were summarised and jointly analysed, in order to derive the most serious consequences of outpatient care providers from all respondents.

92% agree that the most serious consequence would be major disruption of road traffic, followed by personnel shortfall (89%) and not being able to visit customers (87%).

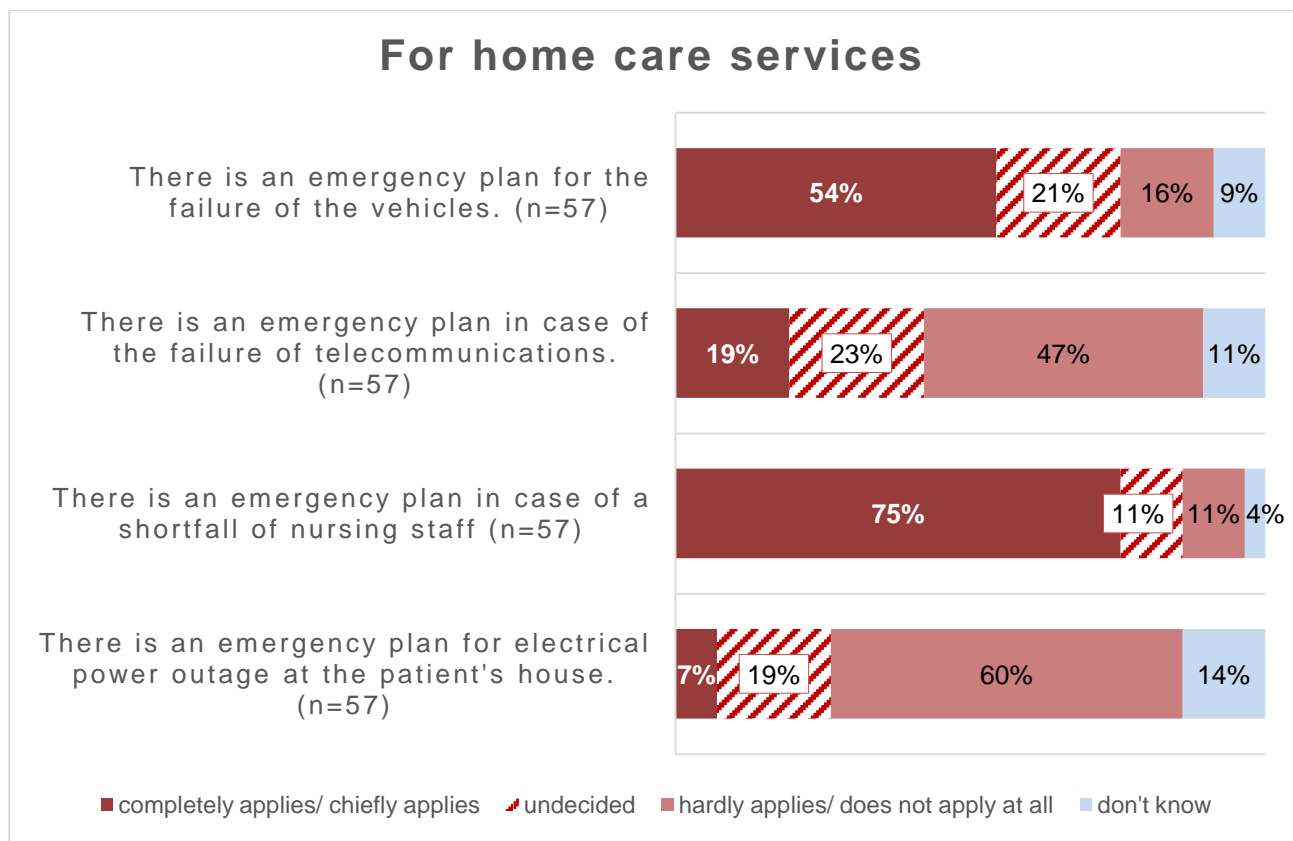
Figure 25: Care survey, residential and day-care facilities: Plans



The corresponding two questions of the questionnaire (19 and 23) were summarised and jointly analysed, in order to obtain an overview from all respondents of how many inpatient and outpatient care providers have plans in place.

On average, 47% of inpatient and outpatient care providers indicated that they have plans for various scenarios in place. 62% stated that their facility has an emergency power unit installed.

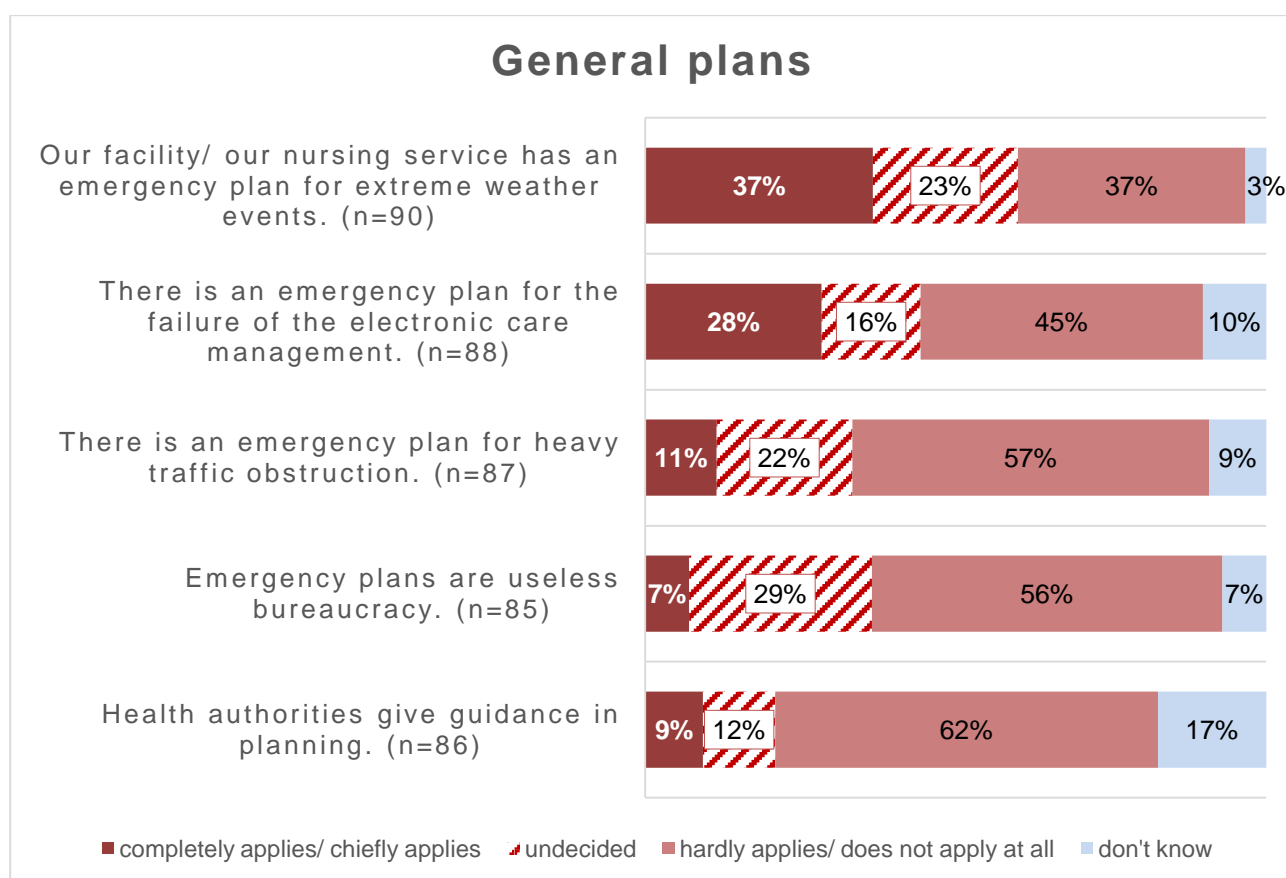
Figure 26: Care survey, home care services: Plans



The corresponding two questions of the questionnaire (20 and 26) were summarised and jointly analysed, in order to evaluate the plans all respondents providing outpatient care services. On this topic, 75% of respondents agreed to the statement of having a plan in place for the shortfall of nursing staff. In addition, 54% of respondents have a plan for the shortage of vehicles in place.

In contrast, the nursing staff indicated having no plan in place for the loss of power (60%) and the loss of telecommunications (47%).

Figure 27: Care survey, general plans

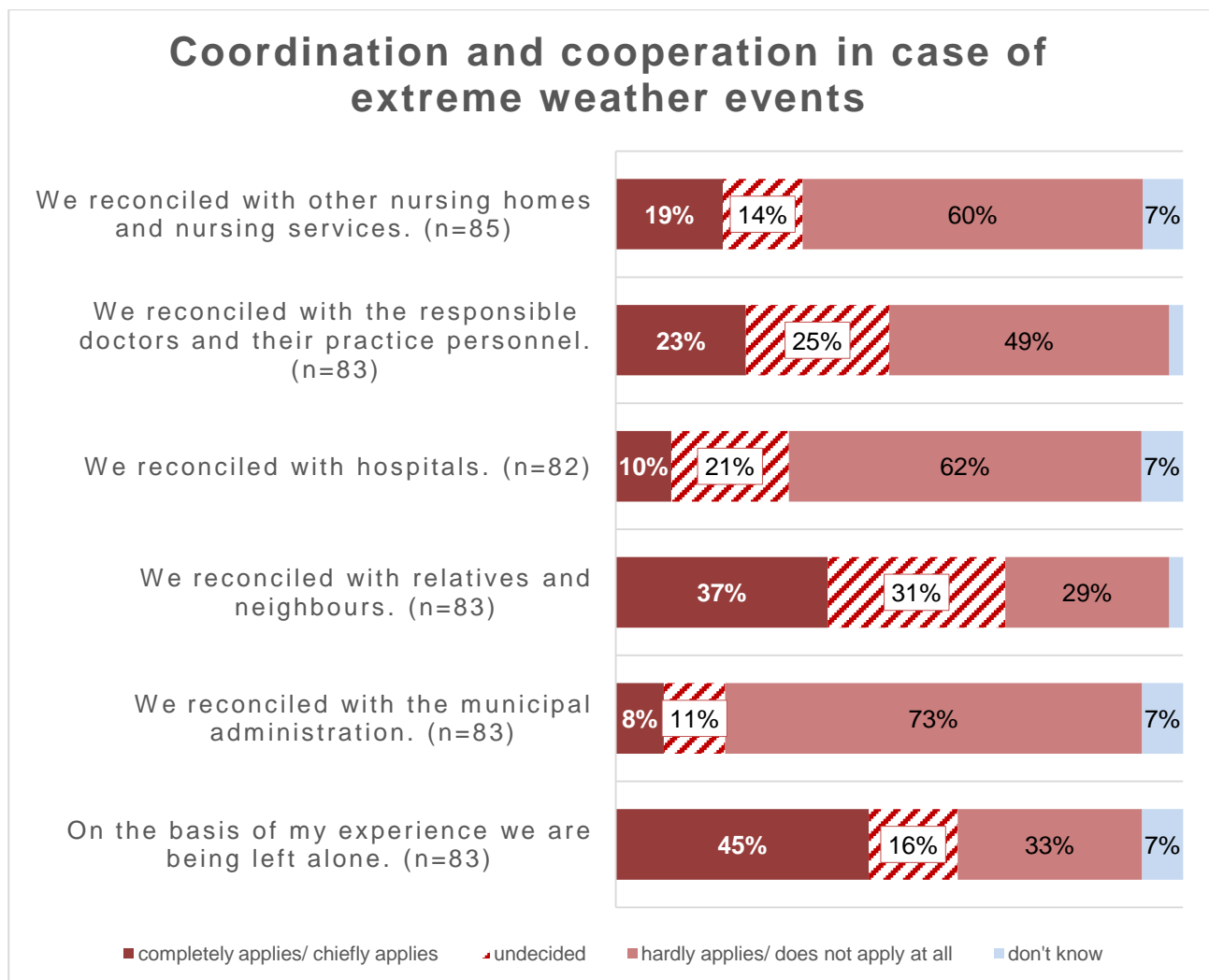


The corresponding three questions of the questionnaire (18, 22 and 25) were summarised and jointly analysed, in order to obtain an overall evaluation of the plans for all types of care services. 37% of the surveyed nurses stated having an emergency plan in place for extreme weather events. 28% of the respondents have plans in place for the failure of the electronic patient management and 11% of the respondents have plans in place for serious disruption to road traffic. 9% confirmed to receiving a planning guide from the health authorities. 7% confirmed the view that plans are useless bureaucracy.

The nurses were also asked what would help them to get better prepared for extreme weather events. Again, the corresponding three questions of the questionnaire (21, 24 and 27) were summarised and jointly analysed for the overall evaluation. Responses were categorised and listed by frequency:

- ▶ Improved and more timely weather forecasts and warnings (7)
- ▶ Emergency plans, templates and standards (6)
- ▶ Better general information, such as road closures (4)
- ▶ Optimisation of communication and cooperation (contact persons, telecommunications) (4)
- ▶ Human Resource Management (further training, financing and pool) (3)
- ▶ Emergency Power Supply (1)
- ▶ Involvement in crisis management discussions (1)
- ▶ Information to the citizens for gaining more understanding in case of failure or delay (1)
- ▶ Road clearance incl. side roads (1)

Figure 28: Care survey, coordination and cooperation

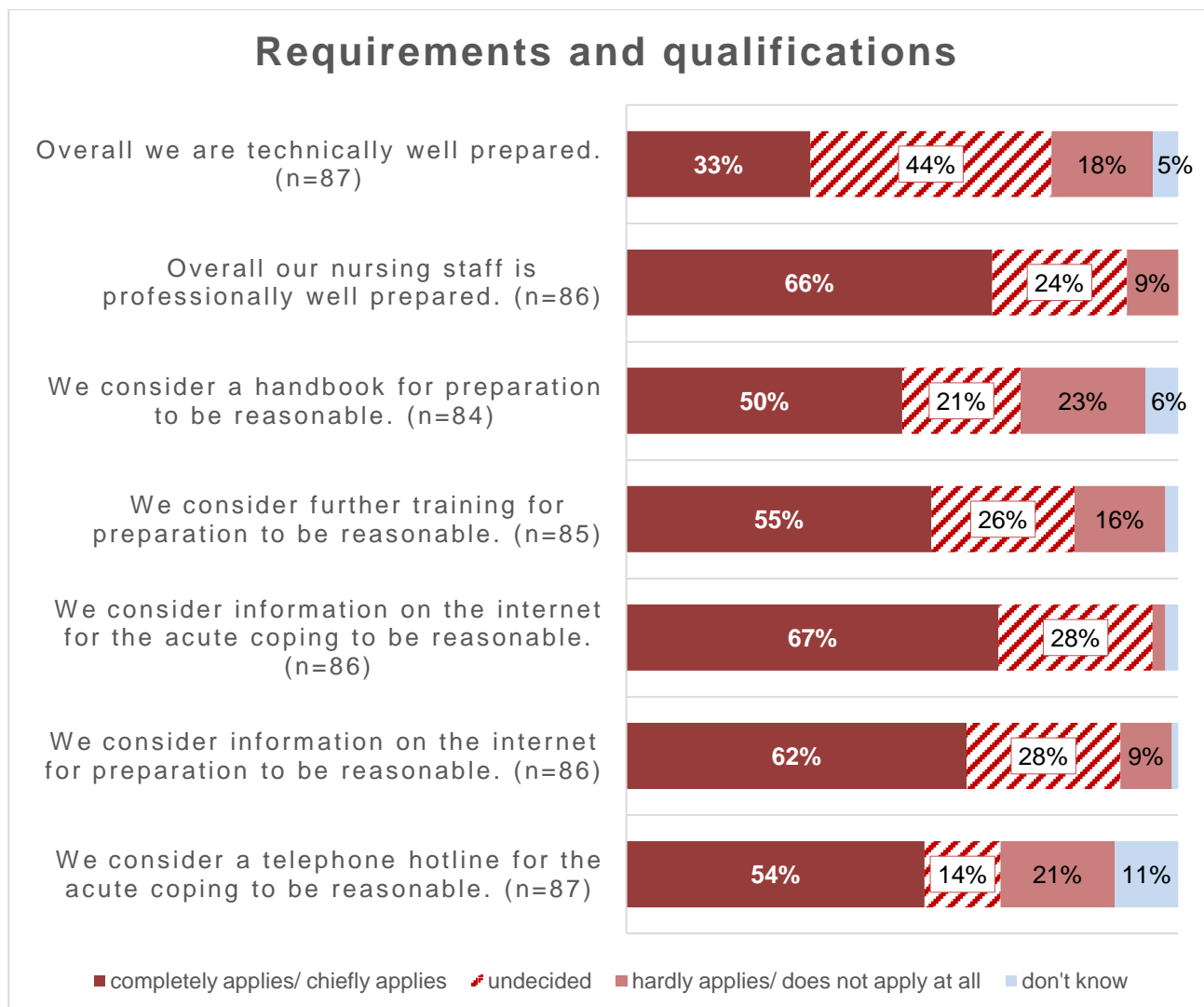


45% agreed to the statement that they previously experienced being left completely abandoned during extreme weather events.

About 37% of nurses reported that they previously aligned themselves with relatives and neighbours. 23% of respondents confirmed the reconciliation with physicians and doctors.

In addition, 19% of respondents stated that they have reconciled with the management of other nursing homes and attending care services.

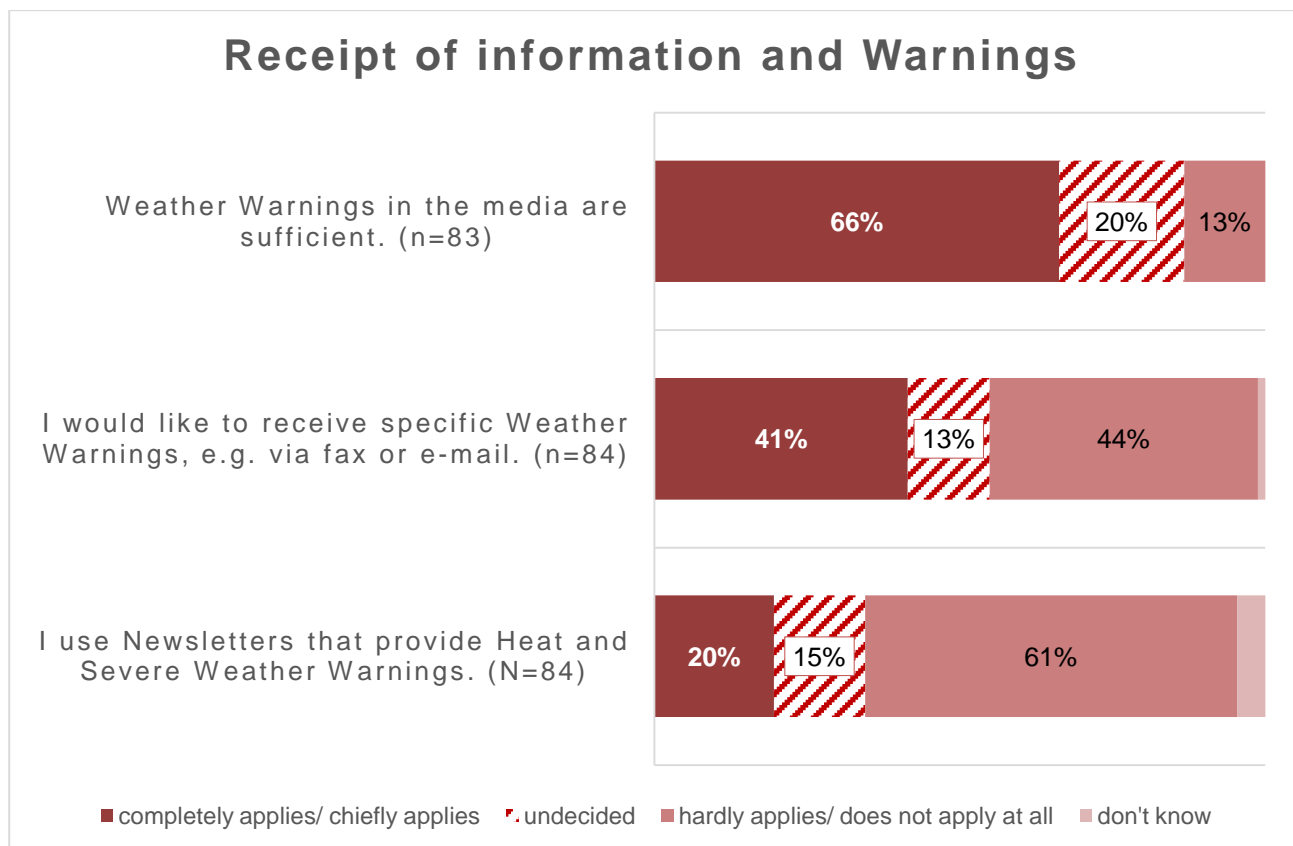
Figure 29: Care survey, requirements and qualifications



About 66% of nurses reported that the care staff in their organisation or nursing service is well prepared. 33% confirmed that technical preparation is in place. To prepare for extreme weather events, 62% of nurses consider information from the Internet as useful, 55% of respondents find trainings to be meaningful and 50% consider a training manual to be appropriate.

For the acute coping with such events, 67% of the surveyed nurses consider information on the Internet and 54% consider a telephone hotline as useful.

Figure 30: Care survey, receipt of information and Warnings



71% of the surveyed nursing facilities and services would like to receive focused Severe Weather Warnings. 55% reported using Newsletters that provide Heat and Severe Weather Warnings.

36% of nurses surveyed indicated that Weather Warnings in the media are sufficient.

4.3 Discussion

The responding doctors and physicians are mostly self-employed and work in individual or group surgeries (88% in total). To a great extent, the responding nurses work in administration (84%).

All respondents frequently mentioned that traffic restrictions resulted from previous extreme weather events (physicians 72%, care sector 76%).

This is followed by 43% of doctors and physicians who were not able to visit their patients or surgeries and a subsequent increase of patients due to physical illness and injury (28%).

The care survey reveals personnel shortfalls (53%) to be the second most important impact of past extreme weather events followed by damage to the health of employees (33%).

All respondents estimated possible consequences of extreme weather events primarily as severe. From the options provided in the questionnaire, the failure of the patient's power supply (52%) and the failure of medical equipment (54%) were selected by doctors and physicians as the least severe infrastructure disruptions. For this question, the inpatient and outpatient care facilities assumed the following disruptions to be less severe: Failure of media such as radio and television (11%) and failure of the electronic patient management system (33%).

The failure of the patient's power supply (63%) and the failure of medical equipment and care aids at the customer home (64%) were stated by providers of outpatient care services as the least serious consequence. Overall, the consequences asked in the questionnaire were primarily assessed as serious and there is a strong perception in terms of the seriousness of the risks.

This is in contrast with the statements on existing plans and precautionary measures for disruptions. 75% of outpatient care providers have a plan for the shortfall of care personnel and 54% have a plan for the shortage of vehicles in place. 62% of inpatient and outpatient facilities are equipped with an emergency power supply unit, 55% have plans for the loss of power in place, 57% have plans for personnel shortfall and 50% have plans for the failure of elevators. Plans are less common for the surveyed doctors and physicians. 20% of them agreed that plans are useless bureaucracy. 30% of doctors and physicians have a plan for the failure of the electronic patient management system and 24% have a plan for personnel shortfall in surgeries.

On a whole, arrangements for dealing with the consequences of extreme weather events are rarely concluded. 3% of the doctors and physicians group indicated that they coordinated with municipal administrations. Care facilities or care service providers most frequently coordinated with relatives and people from the neighbourhood (37%).

Newsletter with Heat and Severe Weather Warnings are used by 55% of the care facilities or care service providers and by 20% of doctors and physicians surveyed. To this end, a positive effect of the efforts on various levels of the administration to promote the receipt of Warnings by care facilities or care service providers is perhaps already visible.

5 Strategy

The medical outpatient treatment for old and chronically ill people - even under extreme weather conditions - resides in the remit of general practitioners and for nursing, in the remit of care facilities or care service providers.

Inadequacies and health care gaps endanger these people and create a major effort due to the increased use of emergency services and hospitals. The interviews with general practitioners, care service providers and care facilities consistently revealed that the majority has already suffered (more than 80% in both service areas) from such events and associate great fears with this topic. Major differences in attitudes, expectations and deployed preventive measures exist due to the different position and organisation of these two sectors. Any strategy must take such differences into account.

The strategy includes the following points:

- ▶ Long-term planning and preparation of measures by the facilities for cases of extreme weather events
- ▶ Provision of long-term and current information and trainings for the care areas involved
- ▶ Establishment of a Warning system and provision of timely information for institutions and the general public
- ▶ Organising the interaction of different sectors and institutions in regional co-operations, if necessary by statutory and non-legislative regulations
- ▶ Provision of material resources, helpers and vehicles

The strategy includes all levels of administration.

The analysis of the surveys of the different levels revealed that effective measures are available on all levels. Subsequently, the respective proposals were developed.

5.1 Initial situation in primary care

In the context of compulsory quality management (QM), surgeries are required to document processes in a structured way. The Association of Statutory Health Insurance Physicians has defined requirements and guides and inspects the process. Disaster management and the supply measures for extreme weather events are not yet included in the QM.

In the primary health sector, doctors are largely responsible for their respective service area in the context of the rules of medical self-administration. They are very flexible in order to meet the diversity of duties and adapt to current requirements. This variety of tasks ranging from patient care to the entire economic management of their surgery makes it difficult for doctors to provide comprehensive precautions for all vicissitudes. Despite all fears, the confidence in the adaptability replaces structured preventive measures. Overall, the preparation for extreme events has low priority (emergency plans exist in 9% of surgeries). 51% considered the annually recurring (and always well mastered) flu outbreak to be more problematic than extreme weather events.

On the other hand, no structured guidance or even suggestion is available from the authorities or the government. The feeling of being left alone is pronounced (62% of doctors and physicians surveyed).

5.2 Initial situation in nursing care

The guidance, information and inspection of care facilities and care service providers lies in the remit of the health authorities and the cost bearers. Care providers are mainly organised in larger companies; there is a greater division of labour between management and the immediate nursing care (responses to the management survey: 52% management, 32% nursing service management and just 8% employees in the nursing sector). Only private providers were interviewed, due to methodological reasons. Associations for these providers have no legitimate structures that are authorized to issue directives as opposed to nationwide operating welfare associations. The associations are to be involved in the coordination of the strategy. Importance must be attached to appropriate comprehensive emergency plans, possibly by means of a prerequisite for the approval or financing of facilities and services.

Snow and icy conditions represent the most important extreme weather events of the past, similar to the responses of doctors, and affected 80% of the respondents. The subsequent effects were traffic congestion for 76% and personnel shortfall for 53% of the respondents. 37% perceive diarrheal epidemics at the facilities as more problematic.

The average long travel distance to individuals in need of care (more than 15 km for 46% of patients) illustrates the issue for the outpatient care sector.

5.3 Long-term planning and preparation

The options for promoting a long-term planning and preparation of measures for cases of extreme weather events in the facilities are shown in the following table.

Table 1: Long-term planning and preparation

Doctors	Caregivers
Measures to ensure healthcare provision under extreme conditions and/or precautions against adverse weather conditions shall be added to the QM manuals and shall be gradually implemented by the surgeries according to the conditions of the respective facility	Obligating care facilities and services to have contingency plans in place with regards to the disruption of healthcare provision during extreme weather events
Association of Statutory Health Insurance Physicians and the regional associations of statutory health insurance physicians and their supervisory authorities could take on the responsibility for guidance and inspections as part of their service guarantee	The district health authorities could resume responsibility for guidance and inspections; for centrally managed facilities of welfare associations, their respective board members could resume such responsibility

Plans for extreme weather events are more common for nursing facilities and care service providers than for medical surgeries. On the other hand, care facilities and care service providers with a large number of patients cannot make use of neighbourhood help and improvisation. Such facilities must provide all the reserves themselves. This results in a high-risk potential for the individuals in need of care.

Table 2: Base data for recommendation 1

Doctors	Caregivers
7% of surgeries have emergency plans and 9% have segment emergency plans in place	37% of nursing facilities have emergency plans and 23% have segment emergency plans in place
20% of physicians surveyed consider emergency plans to be useless bureaucracy	7% consider the contingency plans to be useless bureaucracy, another 29% somewhat agree
34% partially agree. 15% of surgeries have plans for power failure and 14% have partial solutions, 6% have plans for serious traffic problems and 8% have partial solutions	54% of providers in the outpatients care sector have plans for vehicle failure and 75% for personnel shortfall, but hardly any provider has plans for the failure of telecommunications or power failure on patients' site
In previous extreme weather events the main issues related to power supply failures (suffered by 22%, feared by 91%) and traffic congestion (suffered by 72%, feared by 74%)	With 55% of facilities prepared for power failures and 57% prepared for staff shortfalls and 44% prepared for the failure of the economic supplies, just above one half of facilities have measures in place

14% have contingency plans for telecommunications disturbances and an additional 17% have partial plans in place. 30% have plans for documentation and an additional 14% have partial solutions

19% of the facilities and services have contingency plans for telecommunications disturbances and an additional 23% have partial plans. 28% of the facilities and services have contingency plans for the failure of documentation systems and an additional 16% have partial solutions

The purely instructing measures should be complemented with opinion-making measures in order to reduce the defence attitude towards the requirements (please also refer to advanced training). A low risk perception and a general reservation regarding the hazards caused by extreme weather events becomes evident by the high rate of measures perceived as “useless bureaucracy”, the drastic disparity between expressed fears and implemented precaution measures and the far-reaching equalisation of the issues with the requirements for waves of infection.

5.4 Provision of long-term information and further education measures

The provision of long-term information and training measures for the care areas involved should be achieved by means of a manual and trainings. The health authorities of the Federal States should furnish the parties involved in care with guidance for long-term planning.

A handbook for the provision of care during extreme weather conditions should be centrally developed and include all areas involved, and especially their reciprocal interaction.

Such guide should be made available via the Internet.

The respective associations should offer training opportunities as an optional supplement in the context of the general further education of doctors and the occupational advanced training of nurses. The preparation of the structures and the qualifications of nurses can take place both regionally and for a large proportion also vertically by the welfare associations.

Case studies are used for this purpose.

In addition, contributions in professional journals should be used as stimulus.

Table 3: Base data for recommendation 2

Doctors	Caregivers
56% of surgeries have expressed an interest, another 23% are partially interested in an Internet-based instantly accessible guide for the planning of own measures	The preparation via the Internet is deemed useful by 62%, and a further 28% partially agree
28% consider a manual to be useful and a further 28% find a manual partially useful	50% would like to have a planning manual and another 21% partially desire such guide
This process should be accompanied (40% agree and 18% partially agree) by further training courses	Further training in this sense is supported by 55% and partly supported by another 26%
17% of doctors assume to be professionally well prepared, while another 36% believe to be partially prepared. 19% of specialist staff believe to be well prepared, while another 24% believe to be partially prepared	This indicates a strong need, regardless of the fact that 66% of the facilities and services keep their nurses professionally well prepared, a further 24% keep their nurses professionally partially prepared

The need for guidance amongst providers of care is high, both with regards to the long-term care and for the current situation. Only the health authorities are eligible to provide such service, as there is no other superordinate body for this area of care, such as the physicians' associations for physicians.

5.5 Establishment of a Warning system and provision of timely information for institutions and the general public

An integrated Warning and information to all those involved in care is suggested. Nursing facilities and services as well as medical surgeries should be included in a Warning and information system, in order to reach all facilities regardless of their parent structures (umbrella organisation, associations).

In addition, a hotline should be established for the facilities, which provides information and also forwards messages received from the facilities to the coordinating institution.

The district health authorities appear to be the appropriate level for such purpose.

Table 4: Base data for recommendation 3

Doctors	Caregivers
The surveyed physicians would not consider a special warning system to be useful and believe that the general warnings by the media are sufficient (66%)	36% of nursing facilities consider the Warnings in the media to be sufficient
On the other hand, 41% would like to receive specific warnings	71% would like to receive targeted weather warnings
20% of the surveyed doctors currently use a Newsletter	55% of nursing facilities and care services already use a Newsletter
65% of physicians are in favour of Internet information for supporting the tackling of current situations, while 21% are partially in favour of such information	67% consider information for the tackling of current situations to be useful, and a further 28% consider them partially useful. This would reach 95% of the respondents
Telephone hotlines are expected by 41% and a further 24% consider them partially useful	Telephone hotlines are desired by 54% and partially desired by 14% and hence desired by 2/3 of all facilities and services

Health authorities should also coordinate the information for the public, if necessary, by means of hotlines. Another target would be the request for mutual aid and assistance in cases of failure and the consideration of the situation when calling upon medical assistance. A qualified hotline could advise and assist the population in cases of emergency.

5.6 Organising the cooperation between different sectors and institutions

Due to the lack of otherwise overarching coordinating structures, the health authorities of the Federal States or the municipal administrations should initiate and moderate the process of regional cooperation between health care and nursing facilities. For this purpose, the forms of collaboration already proactively agreed by the facilities could be used as a foundation. Voluntary measures appear to be sufficient.

Table 5: Base data for recommendation 4

Doctors	Caregivers
<p>Coordination within primary health care: Joint measures can be coordinated in existing networks (47% of surgeries are already organised in such networks).</p> <p>In particular, the reciprocal substitution and support (so far only implemented by 20% and partially implemented by 17%) can be coordinated by such means.</p> <p>In cases of extreme weather events, the individual professional groups are strained and utilised to a different extent; such activities and treatments can partly be deferred or suspended. Thus, the expected higher workload could be absorbed.</p> <p>However there is a need for the physicians' associations or the cost bearers to arrange for agreements regarding the remuneration of such performance transfers. The physicians' associations and the regional administrations could set impulses, since the process will not be spontaneously self-running</p>	<p>Coordination within nursing care: A substantial increase in security for the people in need of care would result from a coordination between the institutions regarding the reciprocal takeover of care in cases of emergency, in order to shorten long journeys to attend patients. The competition between care service providers however presents an obstacle. 19% coordinated with other care services and nursing facilities plus 14% partially.</p> <p>For 20% such coordination is already prepared. Neighbourhood assistance requires a prior consultation and preparation, and probably better public awareness</p>
<p>An assumption of time-bound care treatment measures by surgeries was agreed by 16%</p> <p>And in addition, reconciliation between doctors and care services was agreed by 8% plus 11% partially</p>	<p>23% have a reconciliation of care providers with surgeries in place plus 25% partially</p> <p>37% have a reconciliation of care providers with relatives and neighbours in place plus 31% partially. It must be agreed for each nursing patient who in the proximity can possibly take over the supply of food and the general observation</p>
<p>3% agreed reconciliation between doctors and hospitals plus 14% partially</p> <p>So far only 3% fully and 2% partly carry out reconciliations with the local administration</p>	<p>10% agreed reconciliation between care services and hospitals plus 21% partially</p> <p>8% fully coordinate care with the local administration plus 11% partially</p>

The administrations and the cost bearers must overcome possible obstacles in the form of bureaucratic barriers or adverse remuneration arrangements.

5.7 Provision of material resources, helpers and vehicles

In a first step, the facilities should allocate their own personnel reserves to the plans, e.g., retired former employees. In addition, the regional authorities should build up and arrange for reserves from other areas such as administration, if necessary.

Home visits under difficult traffic conditions such as heavy snowfall/high slipperiness must be initially prepared on an individual practice-oriented basis. Self-driving of physicians, doctors and specialist staff under extreme weather conditions is a high physical and psychological stress, which adds to the other additional tasks. A reserve for driving capacities should be initiated by the local authorities.

Support by the cost bearers should be considered in preparation for power outages in surgeries, in particular the provision of emergency power equipment. Otherwise, it will be impossible for some surgeries to prepare for such events.

For some care services providers and facilities it could be required to prepare support in form of substitute vehicles/drivers, for cases where the cooperation measures between service providers, surgeries and neighbourhood aid is not sufficient.

Overall, the preparation for extreme events has a much higher priority for nursing service providers than for general practitioners, namely for the currently reflected status and with regards to the willingness to change.

5.8 Mapping measures to levels

The proposed measures relate to different authorities and institutions and to different levels, ranging from the federal level to the level of individual on-site care.

However, federal level does not necessarily mean that federal bodies must implement such measures (e.g., BMUB, UBA, BMG, RKI, DWD). Such measures can rather be delegated to arbitrary organisations by central order. In order to reduce the effort, it should be avoided that uniformly to be implemented measures are repetitively reinvented in an uncoordinated way. It would also help if the subordinate levels would coordinate and compare the measures that are built upon superordinate measures.

5.8.1 Federal level or actions that are appropriate to the whole of Germany

- ▶ Information and warning services for institutions on Federal State level and central warning services for the citizens and facilities (to be visited facilities or delivery service)
- ▶ Manual for medical and nursing care in disaster situations
- ▶ Educational materials for medical further education and advanced nursing training
- ▶ Development of standards for quality management in medical surgeries, integration into quality management systems (remit of the German Federal Association of Statutory Health Insurance Physicians)
- ▶ Remuneration arrangements by the German Federal Association of Statutory Health Insurance Physicians and the central association of health insurance companies for compensating surgeries

for the special costs related to the fitting of emergency power generators or the use of professional transport companies (taxis, driving schools as substitute taxis)

- ▶ Concepts for public campaigns, in particular regarding the mutual assistance among the population during extreme weather events
- ▶ Planning and conceptual preparation of media relations for the targeted support of the medical and nursing care under extreme weather events.

5.8.2 Federal States level

- ▶ Provisions for dealing with information and warnings, e.g., by health authorities and regional administrations
- ▶ Coordination of joint action plans for extreme weather events between the Federal State ministries that are involved in rescue and securitisation operations and/or exercising supervisory duties for such operations
- ▶ If necessary, modification of manuals and training materials according to specific tasks, situations and specific conditions of Federal States
- ▶ If necessary, other stipulations/specifications for the QM of general practitioners by the Federal State physicians' associations
- ▶ Planning and conceptual preparation of media relations for the targeted support of the medical and nursing care under extreme weather events.

5.8.3 County level

- ▶ Specification/clarification of the plans on the Federal State level for the county and local authority levels
- ▶ Specification of rules of interaction for the care sectors and facilities, particularly for hospitals, outpatient medical facilities and nursing facilities
- ▶ Inclusion of extreme weather events in the disaster and emergency plans of hospitals and nursing facilities; inspection of measures and/or preparatory measures
- ▶ Preparing a hotline for health facilities to provide information on obstacles such as road closures, diversions, requests for support services, and in turn for the provision of information by the facilities regarding disorders and impairments of supply
- ▶ Supplementary measures for informing and alerting facilities and the general public.

5.8.4 Local level / regional administration

- ▶ Encouraging the parties involved in medical care or nursing care to participate in regional meetings regarding the cooperation in special circumstances
- ▶ Support for the coordination of nursing facilities and outpatient medical care
- ▶ Creation of reserves for the support of care facilities, in particular for transport tasks, coordination, e.g. with taxi companies and the use of driving schools as a reserve
- ▶ Active citizenship for recruiting citizens to participate in mutual aid and other measures, approaching regional self-help groups
- ▶ Preparing a point of contact that assumes tasks such as operating a hotline at county level.

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