

## SHORT REPORT

### COVID-19 EPIDEMIC IN THE NURSING HOME – THE GERMAN EXPERIENCE

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#### Covid-19 in German nursing homes – A general overview

Until mid of June 2020 186.269 Covid-19 infections were confirmed across Germany and 8.787 infected persons had died with a mortality rate around 4.2%. 172.000 persons had recovered then. Based on the report provided by the Robert-Koch-Institut (RKI) (1) more than 85% of the deceased persons were beyond age 70.

In Germany 14.500 nursing homes with more than 800.000 residents have been registered (2). German nursing home residents show a wide range of pre-existing conditions their functionality usually being seriously impaired. As a consequence they must be regarded as highly vulnerable.

Based on the latest report 17.278 residents and 9.654 staff member of collective living quarters were infected by Covid-19. The term collective living quarters refers to nursing homes and to refugee centers and homeless shelters as well. However, the vast majority of infected persons in this category were nursing home residents and specific recommendations for their protection were drawn up (3). Among the infected residents 22.9% were treated in hospitals and 4.2 of the staff members. 19.9% of infected residents had died, but only 0.5% of infected staff members (1).

As a consequence of official reporting nursing home residents and residents of other forms of collective living quarters could not be completely differentiated with around 26% of cases having not been assigned to a specific category. Therefore the numbers are still slightly blurred. Nevertheless, it has to be noted that hospital admissions and mortality rate show significant differences between residents and staff member.

#### Heterogenous distribution of Covid-19 infections in nursing homes across Germany

Early during the pandemic the distribution of Covid-19 cases was very heterogenous across Germany. The most affected areas were located in the south (Bavaria, 47.626 confirmed cases), in the south-west (Baden-Württemberg, 35.090) and in the western regions (Nordrhein-Westfalen, 39.233). The northern (Schleswig-Holstein and Mecklenburg-Vorpommern 3.903) and the eastern regions (Brandenburg and Saxony-Anhalt 5.082) were affected to much lesser degree. (1)

In the following paragraphs, we will present some regional

experience with the Covid-19 pandemic in nursing homes with a special focus on the areas where the highest numbers of infections were documented.

#### Covid-19 in nursing- homes in Southern Germany (Nuremberg)

Nuremberg is located in the south of Germany. The city has a population of 518 000. 6000 inhabitants are living in nursing homes. On March 20 a staff member of a nursing home was tested positive for Covid-19. Four days later the first resident followed. Until the end of May 104 nursing home residents were reported as being infected by Covid-19. The local incidence for nursing home residents was estimated around 2 % with an age range between 54 and 102 years. 60 % were female. 27 of the infected nursing home residents died. Among them 14 died in the nursing home and 13 died in hospital. The mortality rate was estimated 26 %. Mortality was higher in men than in women (40 % vs. 20 %). 80 % of the deceased were older than 80 years. During the same period 51 among 2353 staff members (2.1 %) were infected by Covid-19, while none of them died. 15 out of 58 Nuremberg nursing homes had Covid-19 infected residents, three of them being identified as Covid-19 “hot spots” with a total of 86 infected residents and 43 persons among staff members.

Initial administrative action started on the 14th of March. Nursing home visits were limited. One week later all visits of family members and friends were completely prohibited. Visits were still possible in palliative care situations. During the general lockdown nursing home residents were not allowed to leave their residence. After the 1st of April only one GP was in charge for each nursing home. This measure was intended to reduce the person-to-person contacts and to spare protective garment and masks.

Early in April mobile medical teams were available for mass screening in nursing homes. At the same time the government decided that medical mask and protective garments were obligatory and they also stopped all admissions. Some of the nursing home established quarantine departments where residents had to stay when returning from hospital. However, most nursing homes were not able to set up a quarantine in the early phase of the pandemic, mostly due to a lack of protective garment and masks.

## *COVID-19 EPIDEMIC IN THE NURSING HOME – THE GERMAN EXPERIENCE*

Personal protective equipment was rare in March and in early April. The allocation of the material was centrally organized by the city of Nuremberg. In nursing homes with many infected residents and contacts among staff a significant shortage of personal resources became evident. As a consequence contact persons among the staff were allowed to work, if considered essential for the functioning of the nursing home.

Starting on the 5th of May nursing homes opened for external visits again. With relevant precautions visits of single family members were possible again. All nursing homes had to develop preventive hygienic concepts. Since the 25th of May new admissions and retransfers from hospital have been accepted again, usually a negative screening for Covid-19 being a prerequisite.

### **Covid-19 in nursing homes in Southwestern Germany (Stuttgart)**

There are approximately 1,200 nursing homes with 100 000 residents in the South-Western part of Germany. The Covid-19 pandemic hit this area in the second week of March. The vectors and trajectories in long-term care differed considerably from other parts in Europe. The Covid-19 cases peaked at the end of April. The numbers have been declining since then. The initial drivers of the infections were returning skiers from resorts in Austria and Northern Italy. Therefore nursing home staff and residents were not among the groups that were affected early during the pandemic. These circumstances allowed most institutions to prepare themselves at least to certain extent - before the first cases of infected residents occurred.

The urban region of the state capital Stuttgart with 2 million inhabitants had only one nursing home outbreak. Restrictions for hospital admissions from long-term care were not put in place at any time. The ICU, respirator and acute care capacity were not jeopardized. A nursing home care task force was established in April that developed recommendations for screening. There were some shortages for protective equipment in March until mid-April. Since then nursing home care and long-term care at home were provided with sufficient resources. A strict order on nursing home visitors was started early on. The Covid-19 test capacity increased in April but was not completely sufficient until the end of April. Mass screening of nursing home residents was started in the middle of June. In area of Heidelberg with a total of 700 000 inhabitants all nursing home residents were tested for Covid-19 by nasopharyngeal swabs. In more than 4000 tests only one ongoing infection could be documented. Therefore the epidemiological situation has been considered as stable – at least for the moment.

### **Covid-19 situation in Western Germany (Aachen)**

Aachen is the westernmost city of Germany and located next to the district of Heinsberg, where the Covid-19 pandemic had its first hot spot during the carnival season.

Since March 8, 2020 nursing home visits were limited to a minimum and all public events in nursing homes had to be cancelled. Also community facilities (e.g. cafeteria) within the nursing homes had to be closed on the same day.

From March 22 on all visits were prohibited other than GPs and indispensable therapists. All of them needed to be register at the nursing home entry desk. After the general lockdown in Germany was instituted on March 27 all residents had to stay in their nursing home and were not allowed to leave.

A stop of admission of new residents to nursing homes was announced on March 10, 2020. Since April 3, 2020 all new residents and all those returning from a hospital required a negative Covid-19 swab before admission was granted. In addition, the residents had to stay in quarantine for 14 days in the nursing home.

Especially at the beginning of the pandemic personal protective equipment was insufficient. During a local outbreak in a nursing home provision of care was critical, because the majority of the staff was also infected by Covid-19 or had to remain in quarantine. In this situation the nursing homes supported each other with staff and they also recruited medical students with nursing background, thus adequate care could be maintained.

From May 10 on the aforementioned rules were stepwise deescalated. First visits were allowed within a special visiting area. Only one person was allowed a one-hour visit. Starting July 1 regular visits in the rooms of the residents have been allowed again. But all of the visitors have to be registered and must agree to a contactless measurement of their body temperature.

### **Overview on the principal management and prevention strategies for nursing homes in Germany**

For prevention of further outbreaks in nursing homes the general recommendations to keep a personal distance of at least 1.5 m at all possible occasions as well as the use of protective equipment (masks, gloves and gowns) have been considered as basic. Adequate testing of residents and staff has been advised, especially if an outbreak occurs or if the local epidemiological situation has been changing. The details what may be considered as adequate have been extensively debated. At the moment the local strategies differ widely between different states.

Nearly all visits to the nursing homes were stopped temporarily. Exception were made in palliative care situations. In the early phase, only one GP was allowed for each nursing home thereby limiting the contacts.

Routine measurements of temperature, clinical state,

respiratory frequency and oxygen saturation were used to identify infected residents. Residents with suspected and those with documented infections were put in quarantine until two consecutive swabs for Covid-19 were negative.

The admission to a local hospital was decided upon individually in every resident if a clinical deterioration was obvious. In many instances, the preferred place was then still the nursing home and their will was respected with all consequence.

Routine screening of body temperature among visitors and short questionnaires on contacts and symptoms related to Covid-19 have been required routinely. All external contacts of residents have been documented which will allow the follow-up, if an infection occurs.

If admissions to nursing homes were not frozen at all, returning residents e.g. from hospital had to stay in quarantine before entering the nursing home. At present this requirement have been canceled in many regions.

Mobile medical teams, have been performing mass screenings in nursing homes.

### **Medical and political perspectives on the Covid-19 pandemic in nursing homes in Germany**

With regard to the management of the Covid-19 pandemic in Germany two phases can be differentiated. During the initial phase, all measures were centrally implemented by the central government in Berlin. The decisions were based to a high degree on scientific advice and were strictly followed by the local authorities. With regard to the medical care for nursing homes residents initially relevant uncertainty was present. Some nursing home managers argued that all infected residents should be transferred to hospitals. This perspective was driven mostly by extreme shortages of masks, gloves and protective garment in most nursing homes. In addition, many staff members didn't feel to be adequately trained to provide adequate hygienic standards for their residents and themselves during the pandemic. To the contrary, some physicians suggested that a triage system should be installed. The latter would limit the access of nursing home residents to hospitals with the intention to relieve hospital resources. According to this approach a relevant percentage of infected residents would stay in their nursing homes even if their health status deteriorated. However, the logistic situation improved quickly in most regions and hygiene training was provided internally and externally for nursing home staff. In this initial phase, the central government was not able to get

quick access to protective garment on the international market, but international companies based in Germany provided the necessary logistics. The distribution of protective material was then organized by local authorities. To our knowledge nowhere in Germany the triage system was implemented as the hospital resources have been sufficient to care for all patients admitted to hospitals. Infected nursing home residents stayed in their nursing homes and were not admitted to hospitals if this was according to their advance directive. After the logistics for protective garments had improved local GPs provided adequate care for all residents that were infected by Covid-19. If an outbreak in a nursing home occurred all implemented measures were supervised by the medical authorities and the required medical services were organized by local coordinating centers that had been set up in many areas. Germany was able to ramp up testing capacities very quickly as a multitude of high quality labs are spread over the country. This has allowed a rather precise estimate of the current state of pandemic.

In the meanwhile, local state authorities have taken over from the central government the responsibility for the implementation of measures or recently rather of their lifting. The local situation differs now more than this was the case earlier during the pandemic. While the social contacts have increased very much for nursing home residents since the beginning of July, which is principally welcomed by nearly everybody caring for them, in parallel the worries with regard to a higher probability of outbreaks has increased. It will still be difficult to balance the benefits and the risks for this vulnerable population in the near future as we are still in a learning curve in this respect.

*Conflict of interest:* All authors declare to have no conflict of interests, with regards to this work.

### **References**

1. Robert-Koch-Institut, 2020. Situationsbericht des Robert Koch-Instituts vom 14.6.2020 zu COVID-19. Available at: [https://www.rki.de/DE/Content/InfAZ/N/Neuartiges\\_Coronavirus/Situationsberichte/2020-06-14-de.pdf?\\_\\_blob=publicationFile](https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Situationsberichte/2020-06-14-de.pdf?__blob=publicationFile); File last accessed 23 June 2020.
2. Bundesamt, S., 2017. Care statistics: nursing care within the framework of the German long-term care insurance German [online]. Care statistics Available at: [https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Gesundheit/Pflege/Publikationen/Downloads-Pflege/pflege-deutschlandergebnisse-5224001179004.pdf?\\_\\_blob=publicationFile](https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Gesundheit/Pflege/Publikationen/Downloads-Pflege/pflege-deutschlandergebnisse-5224001179004.pdf?__blob=publicationFile); File last accessed 23 June 2020.
3. Robert-Koch-Institut, 2020. Prävention und Management von COVID-19 in Alten- und Pflegeeinrichtungen und Einrichtungen für Menschen mit Beeinträchtigungen und Behinderungen Available at: [https://www.rki.de/DE/Content/InfAZ/N/Neuartiges\\_Coronavirus/Alten\\_Pflegeeinrichtung\\_Empfehlung.pdf?\\_\\_blob=publicationFile](https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Alten_Pflegeeinrichtung_Empfehlung.pdf?__blob=publicationFile); File last accessed 23 June 2020.