The question below has been answered by the Academic Collaborative Centers affiliated with the Dutch Association of Academic Collaborative Centers Intellectual Disabilities. An overview of questions can be found on the Association's website.

Question
Which epidemiologically supported scenarios exist for the infection and illness rate of residents and staff by service region?

Answer
For this we must base ourselves on the scenarios as drawn up and used by RIVM. There is still so much uncertainty in the predictions that even predictions up to three days ahead are difficult to make. The TUE (Eindhoven University of Technology) publishes daily predictions about (confirmed) infections and mortality based on official data for both the Netherlands and a number of other countries (https://www.tue.nl/en/our-university/departments/biomedical-engineering/the-department/news/news-overview/11-03-2020-eindhoven-data-scientists-take-on-corona-data-to-predict-growth-of-new-infections).

Question
What could the spread of the virus mean for health care organization for people with intellectual disabilities), geographically and in terms of numbers (involved employees/clients, illnesses and deaths over time in different scenarios)?

Answer
Little information is available to provide meaningful predictions about geographical distribution. In a high incidence area, the chance of infection is higher than in the low incidence areas because there are more people who can transmit an infection. In low-incidence areas, the rate of spread is also slower because there are fewer people who can transmit an infection. Due to government interventions in recent weeks, the incidence in these areas may also remain lower than in areas where the incidence is already high. In the most pessimistic scenario, there is only a delay and the areas with high incidence eventually expand across the Netherlands.

Numerical: employees/clients

The same forecasts and policies as presented by RIVM apply to employees.
To recognize patterns or elaborate scenarios for clients with ID, more information is needed to be able to do that. These numbers are currently insufficiently available, and are about too low amounts to make meaningful statements.

In numbers it is possible to give more interpretation on the basis of mortality. This includes looking at previously reported mortality statistics related to Covid-19 from abroad and specific ID-mortality in the Netherlands during the 2017-2018 flu epidemic in which 9.400 more people died than expected based on previous years (https://www.volksgezondheidenzorg.info/onderwerp/influenza/cijfers-context/sterfte#!node-sterfte-als-gevolg-van-influenza).

Illness and death
Deaths currently seem to be an important indicator of the spread of the virus. However, because testing is limited, not all deaths are known to have been Covid-19. So deaths can be missed that should have been included in the Covid-19 mortality.

The possible number of infections can be calculated on the basis of the number of deaths, because there are estimates of the mortality rate as a result of Covid-19. It must be taken into account that estimates about the spread based on mortality are not up to date, because it can take weeks before someone is so ill and dies after infection. Currently, there are several sources that provide mortality rates. The WHO gives a mortality rate of 3.4% compared to the number of people with symptoms. The WHO relies mainly on the number of confirmed cases worldwide and the WHO emphasizes the importance of frequent testing. Because the cases with mild complaints are only tested to a limited extent worldwide, this mortality percentage seems to be an overestimation of reality.

A recent publication in Nature estimates the mortality rate at 1.4% (margin 0.9 to 2.1%; https://www.nature.com/articles/s41591-020-0822-7) based on Chinese figures. Ideally, you determine the mortality rate based on a population where everyone has been tested and so it is certain whether or not they had the virus. The only known situation in which a complete (sub) population has been tested for Covid-19 and data is available, is from the cruise ship Diamond Princess in Japan. There were 3.711 passengers and crew on board, of which 712 were found to be infected and 10 passengers died (mortality rate also 1.4%; John Hopkins University, until 25-03-2020). However, it must be taken into account that the population on board of the Diamond Princess was on average older than the general population. With an adjustment for differences in population structure, based on the mortality on board

the Diamond Princess, an estimate of the mortality due to Covid-19 could be between 0.05 and 1%. The following section explains to what extent these figures can be translated into distribution and mortality risks in the ID-population.

A recent study investigated the spread of COVID-19 among a vulnerable target group, in a nursing home in America. The setting seems similar to the setting in the Netherlands: also in America they suffer from a lack of protective equipment and insufficient testing capacity. Ultimately, 101 residents of the approximately 130 residents in this nursing home were infected with COVID-19. Of the 170 employees, 50 tested positive for COVID-19. 55% of the ill residents had to be admitted to hospital and eventually about 34% of the ill residents died. Disease transmission was increased due to the lack of protective equipment, the frequent changes in types of these protective equipment and the resulting lack of knowledge about the use of these equipment. The authors' recommendations are as follows:

- Employees must continue to be actively trained in the use of protective aids;
- Employees must be actively screened for possible symptoms of COVID-19;
- Visits to the institutions must be limited.

These recommendations are in line with current advice from RIVM and VGN.

ID-population

To translate mortality information into the ID-population, we must take into account the specificities of the ID-population relative to the general population.
It is estimated that about 1% of the Dutch population has an intellectual disability. In the adult population, this would amount to approximately 126.000 people with ID. This number reasonably corresponds to the number of adults who have a care demand in the WLZ (Dutch long-term care act) because of an ID, namely about 120.000, of which 91.000 people have a ZZP (self-employed) for care with residence in or at an institution. This ID-group (with ID-ZZP) is younger than the general population (average of 40.3 compared to 48.3) and consists of more men (56 versus 49%) (CBS).

At first glance, the 65+ rate appears to be important, since Covid-19 mortality is seen primarily from age 65. 97% of all deaths up to March 25 2020 were 65 or older, the largest group being aged 80 -84 years (105; 29%; RIVM). In the general adult population, more than 20% is 65 years or older, in the ID-group it is only 8.5%, and only 2.3% is older than 75 years. At first sight, the ID-population therefore consists of

fewer people who belong to the high-risk group of dying from Covid-19. With these data, estimates of the current distribution of Covid-19 within the ID-group in the Netherlands are between 64 and 7.120 cases.

Vulnerability

However, it is also known that people with ID have generally poorer health with more comorbidities and aging at a younger age (see also Evenhuis, 2012; Hermans, 2014). A prominent risk factor here is heart problems (see De Winter, 2016), which seem to be related to a poorer prognosis in Covid-19. The average age at death in the ID-group is generally 15 years younger than in the general population (CBS). So where the average age at death is 75 in the general population, it is 60 in the ID-group. However, specific information about Covid-19 within the ID-group is currently lacking. More insight can be obtained with a prospective registration of suspicious and confirmed cases.

Historical data

Some insight into mortality risks can still be obtained by looking back in time at earlier periods of epidemics and excess mortality (higher mortality than expected on the basis of statistics). On the basis of this, it is interesting to look at patterns during the 2017/2018 flu season, to learn about specific risks for the ID-population.

Flu season 2017/2018

During the 2017/2018 flu season, there were a total of more than 9.400 more deaths than expected, culminating in deaths of nearly 4.000 people per week, while the average across all seasons is 2.773 deaths per week (for reference: Covid-19 confirmed deaths through 3/25/2020 was 356; RIVM). Compared to a baseline period (period of 142 weeks up to the 2017-2018 influenza season), mortality in influenza season was 10% higher in the general population, and 22% in the ID-group. Thus, the increase in mortality was twice as high among people with ID than in the general population. In numbers per week, this means that in the ID-group (in institutions) an average of 27 people die per week, and during the 2017/2018 flu season, there were 5 more per week, namely an average of 32 deaths per week. Most mortality in the ID-group occurs in the age group 45-64 years, while in the general population this is 75+. The age difference of 15 years at the mean age of death between the ID-group and the general population also persisted during the 2017/2018 flu season, although the average age at death in both groups was one year lower (74 vs. 59 years) than normal.

In the general population the share of pneumonia as a cause of death increased. In the ID-population this was already a common cause of death. Both in the general population and in the ID-group, the share of 'dementia' within the causes of death increased, indicating that people who are generally frail were more likely to die during an epidemic, without, for example, specifically developing pneumonia as the cause of death reported.

Sterker op Eigen Benen en GOUD
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