



In the Netherlands, according to the ‘Wet op de Lijkbezorging’, the purpose of an external postmortem examination is to determine the manner of death. Both the treating physician and the forensic physician, in his role as a municipal coroner, are authorized to issue a death certificate. The treating physician issues a death certificate (A-form) when a natural cause of death is presumed, for example when someone has died as consequence of an illness such as cancer or heart failure. On the so-called B-form the treating physician will write down the presumed cause of death for Statistics Netherlands. If the treating physician is not certain of a natural cause of death, the forensic physician must immediately be consulted. The forensic physician will also perform the external examination if no treating physician is known for the deceased, the identity of the deceased is unknown, or the postmortem interval increases. In the event of an unnatural death the forensic physician writes out an Article 10 form for the Public Prosecution Service. Dutch law commends that only forensic physicians, registered in a register maintained for that purpose, can be appointed by the mayor as municipal coroner.

For several years, there have been doubts about the quality of the external examination by both treating and forensic physicians;<sup>1-3</sup> the detection of unnatural death is not guaranteed, and scientific research and training would be desired. In 2013, the Health Council wrote in its report ‘Forensic medicine dissected: towards a fully-fledged place for a special discipline’, that investments should be made in forensic medical education, monitoring and promoting quality, forensic medical scientific research, the organizational embedding and financing of the forensic medical profession and finally the legislation and regulations. The conclusions from 2013 were repeated in 2016 and 2017 in several other reports.<sup>1, 4-6</sup> Although steps have been taken, the financing of forensic medical scientific research is not yet guaranteed, while the demand for research on the living and especially the deceased is increasing.

A closer look at available data concerning these topics shows that data from Statistics Netherlands (CBS) can be used for epidemiological research into the dead. CBS annually investigates and publishes causes of death trends, stratified by type of death.<sup>7</sup> These death statistics can be used to monitor national trends and, if necessary, to make policy based on these, such as preventive measures for certain causes of death. The cause of death statistics is based on the B-form, a short primary and secondary cause of death questionnaire to be provided by

the physicians. In the event of an unnatural death, the forensic physician fills in on the B-form the circumstances that led to the unnatural death, the nature of the injury, and the location of the event. One drawback is that these figures are quite general and not detailed. In addition, all other information from the external examination is recorded by the forensic physician in a detailed medical examination report. These reports are systematically registered electronically; they contain more information than the CBS causes of death statistics, which makes it possible to get a better picture of what kind of individuals have been found dead and whether these deaths could possibly have been prevented with more attention and care. The registrations of forensic physicians are therefore the ideal source for identifying and evaluating trends within the 'forensic' population and thus contributing to policy and prevention measures.

An example of how the registrations of forensic physicians can be used is scientific research into suicides. In recent decades, a social discussion has arisen about a humane, voluntary, autonomous end of life. The elderly are often the target group of certain so-called 'suicide organisations' or 'right-to-die' organisations that advocate 'death under one's control'. These organizations inform these individuals—who are also partly convinced that their lives are complete—through publications on websites or, for example, the book 'Uitweg' by Boudewijn Chabot, about 'humane', easy-to-execute suicide methods.<sup>8</sup> There is a risk that others, for example through media attention, also choose to commit suicide more easily<sup>9</sup> or that this information is used to stage a suicide and thus disguise a murder.<sup>10,11</sup> Among other things, to prevent a staged murder from being qualified as suicide without extensive research, the document 'Kwaliteitsimpuls overlidensonderzoeken' issued by the Netherlands Police prescribes that an unnatural death (except euthanasia and an expected death in a nursing home) must be investigated by the trinity forensic physician, detectives and Crime Scene Technicians.<sup>12</sup> It has been signaled that this is not always the case, but the size and consequences of the problem are still unknown.

The registrations of forensic physicians also offer possibilities concerning scientific research into the so-called domestic setting corpses (DSC), i.e. deceased persons who have been lying in their home unnoticed for several days, weeks, months, or in exceptional cases even years. In Amsterdam (616,978 inhabitants of 20 years or older; 230,663 (37%) single households), this phenomenon occurs more than in the surrounding smaller cities within the region: on average

about 40 times a year.<sup>13</sup> For preventive purposes, an important first step is to identify which groups are involved and how often this occurs. The municipalities of Amsterdam and Rotterdam started policy/campaigns in 2014 to reduce loneliness.<sup>14-17</sup> Trend research into the characteristics of the domestic setting corpses could be used as a quality indicator of care for vulnerable persons or prevention by the municipality/government.<sup>13</sup> Preventive measures may therefore be used in a more targeted manner.

## Problem statement and aim dissertation

Based on the above, the problem statement of this thesis can be outlined as follows: although Statistics Netherlands reports broadly on the causes of death in the Netherlands, in depth information about the context in which forensically related deaths occur is lacking. For example, it is not possible to evaluate the influence of certain publications (about a suicide method), or interventions (to reduce domestic setting corpses) based on CBS figures.

This investigation aims to change this by researching two themes. Firstly, it aims to gain knowledge about individuals who commit suicide. It is analysed whether there are trends over time and how certain publications on suicide methods and interventions influence these trends over time. This investigation also aims to evaluate how the collaboration of the forensic physician and the Crime Scene Technicians in the event of suicide. Secondly, it aims to obtain more knowledge from the registrations of forensic physicians about individuals who lie unnoticed in their homes for a longer period and/or die lonely.

The different research lines of this thesis are discussed in more detail below. The following paragraphs describe what is already known about these two themes and how this investigation will contribute to more knowledge about these topics. This is achieved by making use of data captured in the registrations of forensic physicians.

## Suicides

In 2019, forensic physicians examined 1,811 suicides. Since the 1990s, more and more organisations in the Netherlands have been researching and informing about ‘good death’; methods of dying humanely without the help of a

doctor.<sup>18-21</sup> In the US, the book 'Final Exit' was on the bestseller list for months. This book provided information on methods to humanely end life and was often consulted by the elderly.<sup>22</sup> The other side of these initiatives is that immediately after their release there was an increase in suicides committed based on advices from the book.<sup>23</sup> In 2013, the book 'Uitweg' was updated with a chapter on the helium method; suicide with a bag over the head ('exit bag') in which helium gas displaces the oxygen present.<sup>8</sup> The helium method is presented as a humane method for older people who want to die under their control when they feel the time is right. Before this book, a DVD was also released in 2012, explaining step by step, which attributes to buy for this method, how to prepare them and how to perform a kind of 'self-euthanasia' (legally 'ordinary' suicide) in the presence of your loved ones without the use of sedation<sup>24</sup>. It is not known whether there has been an increase in such suicides since the release of the DVD and the book 'Uitweg'.

In addition to the helium method and stopping eating and drinking, a humane method with a lethal overdose of medication, such as barbiturates, is recommended by suicide organisations. The internet site 'The Peaceful Pill', a supplement to the book version, keeps track of where barbiturates can still be ordered 'safely' abroad; these drugs are only used in the Netherlands for euthanasia and are not freely available. This website is also mainly aimed at older vulnerable individuals and has a lower age limit of 55 years to be able to become a 'member'.<sup>25, 26</sup> It is expected that there has also been an increase in such suicides.

With the data kept in electronic registrations of forensic physicians, it is possible to investigate the effect of certain publications, such as the book 'Uitweg', on suicide methods. Trend research into suicides could be used as a quality indicator of public mental health care for vulnerable persons and could contribute to targeted prevention and information measures.

## The death investigation in suicide

As illustrated above, to die by suicide seems to be getting easier. On the internet and in special books exact descriptions of suicide methods can be found that are 'successful'. This information can easily be used to stage a murder as a suicide.<sup>27</sup> This raises the question of whether such suicides occur more frequently and how they are currently being investigated. Although various

guidelines prescribe that in the event of a suspected unnatural death (except for euthanasia and death in a nursing home), the forensic physician's external examination takes place in collaboration with the Crime Scene Technicians and the detectives, in practice this does not always appear to happen.<sup>28, 29</sup> It is unknown in how many and in which suicides the Crime Scene Technicians and detectives are not involved during the death investigation. Data about involvement are necessary to evaluate the quality of the death investigation in the event of possible suicides.

## Domestic setting corpses

Little is known about DSC in the literature. In the few articles published about DSC, they are described to be older, vulnerable people, often known with psychiatric problems, self-neglect, and loneliness due to the lack of a social network.<sup>30-33</sup> It is unknown, if this is a national 'big city' problem and the prevention programs have reduced the number of these deaths.<sup>34</sup>

In 2013, GGD Amsterdam, the municipal public health service, published a report, which provided an overview of the number of individuals that had been found dead in their home for more than two weeks before they were discovered and examined.<sup>35</sup> This report was published in 2019 as a journal article.<sup>13</sup> This research generated a lot of national publicity and social discussion.<sup>36, 37</sup> Following the investigation by GGD Amsterdam and the discovery of a ten-year-old domestic setting corpse in Rotterdam, both municipalities have started prevention programs aimed at reducing loneliness among the elderly and mutual involvement of residents.<sup>14, 38</sup> Secondly, it was thought that this would reduce the number of domestic setting corpses.

Forensic physicians usually document an estimate of the postmortem interval for each deceased. In case of a longer postmortem interval, the forensic physician will perform the external examination and make an extensive examination report. This makes it possible to investigate which individuals remained in their homes undetected for more than two weeks before the external examination took place. It is possible to investigate whether the number of these deaths has changed over time and what the incidence is of these corpses per city, corrected for the number of people living alone.

## Outline of the thesis

In part one, investigations into suicides involving helium or barbiturates will be presented, examining how often these deaths occurred under the influence of publications such as the addition of the chapter on the helium method to the book 'Uitweg' in 2013. Chapter 2 presents the results of the study into the number of suicides with the helium method in Amsterdam before and after 2013. Subsequently, it was investigated whether the helium method also gained 'popularity' in the rest of the Netherlands. In addition, it was examined which individuals use this method and whether there has been an absolute increase since those publications in 2013, or whether there has been a shift in these suicides. The results of this can be found in chapter 3. Chapter 4 will show the results of analysis of suicides as result of a barbiturate overdose in Amsterdam and Rotterdam.

Finally, it was investigated in which suicides the forensic physicians' external examination was attended by the Crime Scene Investigators and detectives. Those results are described in chapter 5.

Part two of this dissertation will present in more detail the research on domestic setting corpses (DSC). Chapter 6 presents the results of the study on the prevalence of DSC with a postmortem interval of at least fourteen days in the four major cities in the Netherlands (Amsterdam, Rotterdam, Utrecht, and The Hague).

To evaluate whether media attention in response to the ten-year-old DSC and prevention measures against loneliness had an influence on the number of DSC with a postmortem interval of at least fourteen days, a study was conducted in which the number of DSC in Rotterdam and Amsterdam was compared between the periods before and after the discovery of the ten-year-old corpse. This research is described in chapter 7.

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