Ethnic inequalities in patient safety in Dutch hospital care
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Chapter 1

Introduction
Since the IOM report “To err is human” was published 15 years ago, patient safety has been an important item on the agenda of hospital care worldwide.[1] Many countries, including The Netherlands, have become increasingly ethnically diverse, and so has the hospital population. International studies have shown ethnic inequalities in quality of hospital care and in patient safety. Studies on the link between ethnic background and patient safety in a country with universal healthcare access like the Netherlands are scarce, and so are studies assessing ethnic background who link process and outcome data of patient safety.

This thesis presents the first studies on the relation between ethnic background and patient safety in Dutch hospital care, and will both look at patient safety risks (process), and patient safety outcomes.

Quality of care

‘High quality healthcare means doing the right thing, at the right time, in the right way, for the right person – and having the best possible results’.[2] Quality of healthcare is divided into six domains by both the Institute of Medicine (IOM) and the World Health Organisation (WHO). According to IOM and WHO, quality healthcare is 1. Safe, meaning free of harm and medical error, 2. Effective, meaning that healthcare is based on healthcare need and on scientific knowledge, 3. Patient centred, meaning respectful and responsive care taking into account personal preferences of individual users, 4. Efficient, meaning without wasting time and resources, 5. Accessible/Timely, meaning geographically and financially accessible and in an appropriate setting, and 6. Equitable, meaning delivery of healthcare with consistent quality regardless of patient characteristics such as gender, race, or socioeconomic status. [2,3]

This thesis focused on the sixth domain “equity of quality of care” by primarily measuring the outcomes belonging to the first domain “safety of care” complemented with studies in other domains.

Patient safety

Patient safety is the minimum prerequisite for quality of care. Only after safety is guaranteed, other aspects of care quality can become relevant. “First, do no harm”. Safe care is care without adverse events (AEs). An AE is defined as “An unintended injury that results in prolonged hospital stay, temporary or permanent disability, or death, and is caused by healthcare management rather that by the patient’s underlying disease process”[4,5,6] [Example of AE: Patient X developed an antibiotic rash after Augmentin administration. His hospital stay was prolonged with two days.] AEs can be (potentially) preventable, or non-preventable. A preventable AE is an AE resulting from error in healthcare management due to failure to follow accepted practice at individual or system level [Example of preventable AE: This was not the first time patient X received Augmentin. Augmentin allergy was clearly noted in the patient record].[4]Accepted practice is defined as ‘the current level of expected performance for the average practitioner or system that manages the condition in question’. [4]

AEs are patient safety outcomes, but not all errors or events threatening patient safety of the care process result in patient harm. Patient safety risks are situations that potentially lead to AEs. When a patient safety risk has been eliminated before harming a patient, this is called
a ‘near miss’; [Example of a near miss: Augmentin was prescribed to patient X and the nurse was about to administer the drug to him, when she noticed the allergy in the patient record].

**Ethnic variation in the Dutch population**

In 2013, the Netherlands had nearly 16.8 million inhabitants, of whom 3.6 million with a non-Dutch ethnic background.[7] A person living in the Netherlands is of non-Dutch ethnic background if he/she and one or both parents were born abroad (first generation), or if he/she is born in the Netherlands and one or both parents were born abroad (second generation), according to statistics Netherlands (’CBS’). [8] Statistics Netherlands distinguishes western and non-western backgrounds. Non-western countries are all countries in Africa, South-America, and Asia except Japan and Indonesia. In 2013, there were 1,966,095 inhabitants of non-western ethnic background in the Netherlands. Of them, 879,418 were of the second generation. Nowadays, the first generation migrants start ageing. Their children, the second generation, were educated in the Netherlands. The third generation is still young and small in size. [9] In 2010, 80% of the third generation was younger than 15 years. [7]

The four largest groups of residents with non-western ethnic minority background living in the Netherlands are of Turkish, Surinamese, Moroccan, or Antillean/Aruban origin. Their reasons for migration differ between groups. Turkish and Moroccan men mainly came to the Netherlands between 1960 and 1980 in the wave of economic labor migration and were later followed by their families. The Surinamese group migrated from Suriname, a former Dutch colony in South America. The Surinamese population consists of two principal subgroups: one of African (Creole) and the other of South Asian (Hindustani) descent. Migration to the Netherlands peaked at the time of Surinamese independence in 1975. The Dutch Antilles/Aruba were also colonies, and the population is predominantly of West African, European, and mixed origin. Many Antillean migrants moved to the Netherlands in the 1980s and 1990s to work and study. Ethnic minorities primarily live in the three largest Dutch cities (Amsterdam, Rotterdam, and The Hague) and often cluster in certain neighborhoods.

**Ethnic minorities, non-western patients, Caucasians/Blacks or migrants?**

Writing about ethnicity is not easy, because ethnicity is a complex, multidimensional construct, covering elements of, among others, culture, religion and migration history. [9] There is not a single word that covers all we mean, and for every choice there are both pros and cons. Throughout the world, differences in defining and classifying ethnicity are present. In the United Stated (US) and the United Kingdom (UK), self-identified ethnic background is commonly used, while in continental Europe and also in the Netherlands, country of birth is a common way of ethnic classification, and it has a high correlation with self-identified ethnic background. [9] Obviously, the classification of people into broad groups based on country of birth does not completely capture the underlying diversity of the concept “ethnicity”. In this thesis, we speak of **ethnic minorities and persons with an ethnic minority background**, whereby we mean those persons who were born in a foreign country, or those whose parents were. In some chapters we also speak of **patients with a non-western ethnic background** or we indicate specific ethnic groups (i.e. Turkish, Surinamese etc.). To indicate those who (and whose parents) were born in the Netherlands, we speak of the **ethnic Dutch**.
Determinants underlying ethnic inequalities

It is not the country of birth, or the country of birth of one’s parents that causes ethnic inequalities in health, healthcare utilization, or quality of healthcare. Such inequalities are caused by underlying determinants like language proficiency and socio-economic indicators. Non-western ethnic groups, especially the first generation, generally have a lower socioeconomic status than the ethnic Dutch population. For example, in 2013, unemployment rates among persons with a non-western ethnic background was three times higher than among the Dutch population (16% versus 5%) and their mean income was 33% lower than that of the ethnic Dutch population (i.e. € 25500 vs €18300).[10] Persons of Surinamese and Antillean/Aruban backgrounds often speak and understand the Dutch language, as Dutch is an official language in the former colonies. Persons of first generation Turkish and Moroccan origin often have inadequate mastery of the Dutch language.[10]

Ethnic inequalities in healthcare and quality of care

Internationally, ethnic inequalities in quality of care have been reported. For example, a study in the US found ethnic inequalities in management of acute myocardial infarction across ethnic groups. Rates of reperfusion therapy, coronary angiography, and in-hospital death after myocardial infarction varied according to race.[11] A study in New Zealand (NZ) showed that NZ Māori had 16% higher odds of readmission or death when compared with NZ Europeans suggesting ethnic disparities in the quality of hospital care. [12] Another study showed that foreign-born cancer patients reported lower quality of care and were less likely to receive some specific cancer therapies than patients born in the US. [13]

In Europe and the Netherlands, several studies have examined the relation between ethnic background and quality of care. For example, Scottish and Dutch studies showed ethnic inequalities in diabetes care. [14,15]. Ethnic inequalities in the care process have widely been shown in the Netherlands. [16,17,18] Especially in Dutch general practise (GP) care, the relation between ethnic background and care has been well studied.[19,20,21] However, the relation between process and outcome has not often been investigated. Because in the Netherlands, ethnic origin is not registered in healthcare, research into ethnic inequalities in quality of care is not easy.

Ethnic inequalities in patient safety

Although the currently available evidence suggests an increased risk of adverse events (AEs) during hospitalisation in ethnic minority patients, there is a lack of valid clinical epidemiological evidence for the situation outside the US and New Zealand. [22-26] In general, studies on the link between ethnicity (or variables related to ethnicity such as language proficiency) and patient safety, especially in Europe, are scarce.

Because the American healthcare system is different from healthcare systems in the Netherlands and other European countries, results of US studies cannot easily be generalised. For example, in the Netherlands (as elsewhere in Europe), access to healthcare is universal, which is not the case in the US.
A Dutch study identified three patterns of interactions between professional and patient that can contribute to ethnic inequalities in patient safety: inappropriate responses by health care providers to objective characteristics of immigrant patients, such as low Dutch proficiency or genetic characteristics; misunderstandings between patients and care providers due to differences in illness perceptions and expectations about health care; and inappropriate care because of providers’ prejudices against or stereotypical ideas about patients with a non-Dutch ethnic origin. [27] These patterns form an important foundation for this thesis and were the basis of a conceptual model to understand the relation between ethnic origin and adverse events which we describe in chapter 4.

Dutch healthcare

The Dutch healthcare system is formally characterized by universal access. Basic health insurance is compulsory for all individuals living legally in the Netherlands, and covers all costs like GP care and hospital care. Persons can choose for additional insurance that covers e.g. physiotherapy or dental care. The GP is the gate keeper for specialist hospital care. However, in acute situations, persons can enter the hospital via the emergency department without consultation of a GP. All insured individuals face an obligatory deductible, i.e. the first expenses for healthcare are paid out-of-pocket. [28]

Inequalities, Differences, Variations, Inequities or disparities?

To indicate variations between ethnic groups, different linguistic options exist. In the US, ‘disparities’ is a commonly used term. According to the IOM definition, healthcare disparities are differences in healthcare received by different groups that are not due to differences in the underlying healthcare needs or preferences of members of the groups. [29] In European literature, ‘inequality’ and ‘inequity’ are common terms. In this thesis, we have followed the following definitions:
- Variations, when we do not know whether differences are present
- Inequalities, when differences are present but without a judgment as a purely descriptive term
- Inequities, when unjustified differences are present, and one of the groups is disadvantaged
AIM AND RESEARCH QUESTIONS

This thesis aims to investigate ethnic inequalities in Dutch hospital care by investigating the relationship between ethnic background and patient safety. Both patient safety outcomes (AEs) and patient safety risks during the care process are studied.

The general research question is:

*Are there ethnic inequalities in patient safety in Dutch hospital care?*

This general research question is divided in three parts:

1. Are there ethnic inequalities in excess lengths of stay, readmission rates and total joint arthroplasty rates?
2. Are there ethnic inequalities in AEs? (Outcome)
3. Are there ethnic inequalities in patient safety risks (Process)

Each part has its specific research questions:

**PART 1**
- Are there ethnic inequalities in readmission rates and excess length of stay (LOS) in Dutch hospital care? (Chapter 2)
- Are there ethnic inequalities in total joint arthroplasty (TJA) rates in the Netherlands? (Chapter 3)

**PART 2 - Are there ethnic inequalities in AEs?**
- Are there ethnic inequalities in adverse events in Dutch hospital care? (Chapter 5)
- Do language proficiency, health literacy and SES contribute to AE risk? (Chapter 5)

**PART 3 - Are there ethnic inequalities in patient safety risks?**
- How does a language barrier relate to patient safety during hospitalisation? (Chapter 6)
- How are language barriers signalled, reported and bridged in Dutch hospital care? (Chapter 6)
- What is the role of relatives for the safety of hospitalised ethnic minority patients? (Chapter 7)
OVERVIEW OF THIS THESIS

PART 1
The first two studies (chapters 2 and 3) focus on ethnic inequalities in hospital care in general, and were carried out using a large record-linked database of all hospital admissions between 1995 and 2005. The Hospital Discharge Register (HDR), which contains admission details, was linked to the Population Register (PR) which contains data on country of birth of individual citizens and their parents. Chapter 2 describes ethnic variations in excess length of stay (LOS) and readmission rates. These two parameters are potential distal indicators of patient safety. Because we observed an underrepresentation of ethnic minority patients on orthopaedic wards we used the same database to investigate ethnic inequalities in total joint arthroplasty (TJA), which is described in chapter 3. We compared admission rates for total knee arthroplasty (TKA) and total hip arthroplasty (THA) between ethnic Dutch and ethnic minority groups.

PART 2
The second part of this thesis focuses on ethnic inequalities in patient safety. Patient safety outcomes as well as patient safety risks were studied. The design of an observational mixed methods study is described in detail in chapter 4, where we also present the conceptual model for understanding the relationship between ethnic origin and AEs during hospitalization. In chapter 5 we present the results of a record review study comparing AE rates between ethnic Dutch and ethnic minority patients. In this record review study we calculated AE rates in both ethnic Dutch and ethnic minority patients, and we investigated potential differences in nature, cause and preventability of AEs. We compared our results to international studies and Dutch patient safety data. In this study we also investigated whether inadequate language proficiency, low health literacy, and low education were risk factors for AEs.

PART 3
Chapters 6 and 7 focus on patient safety risks in the care process, which can potentially lead to AEs. In chapter 6 we qualitatively assessed the role of relatives of hospitalised patients in patient safety. Chapter 7 describes the results of a mixed method study assessing the signalling, reporting and bridging of language barriers in Dutch hospital care and the patient safety risks that come along with language barriers in daily hospital practice of nurses and physicians.

GENERAL DISCUSSION
Chapter 8 (general discussion) provides an overall conclusion of results that were found in the preceding chapters, and an interpretation of them. Chapter 8 also discusses methodological issues such as internal and external validity of the results, and gives implications for future research and practice.
Table 1.1 presents an overview of the studies presented in this thesis.
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REFERENCES


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