Emergency department crowding: Factors influencing flow
van der Linden, Christien

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
UITNODIGING

Voor het bijwonen van de openbare verdediging van het proefschrift

EMERGENCY DEPARTMENT CROWDING FACTORS INFLUENCING FLOW

door

CHRISTIEN VAN DER LINDEN

op donderdag 5 maart 2015 om 13.00 uur in de Aula van de Universiteit van Amsterdam

Oude Lutherse kerk
Singel 411 (hoek Spui)
te Amsterdam

Na afloop bent u van harte welkom op de receptie ter plaatse

Christien van der Linden
Laan van Meerdervoort 177
2517 AZ Den Haag
+31 6 50651825

PARRNIMFEN

Naomi van der Linden
+31 6 41845638

Frans de Voeght
+31 6 51403027

phdchris10@gmail.com
EMERGENCY DEPARTMENT CROWDING

FACTORS INFLUENCING FLOW

Christien van der Linden
Emergency department crowding, factors influencing flow
Thesis, University of Amsterdam, Amsterdam, the Netherlands

Cover: Marion Westerman
Lay-out: Nicole Nijhuis, Gildeprint
Printed by: Gildeprint

For reasons of consistency within this thesis, some terms have been standardised throughout the text. As a consequence the text may differ in this respect from the articles that have been published.

Financial support for the publication of this thesis was kindly provided by:

- The Board of Directors of Medical Centre Haaglanden and Bronovo-Nebo
- The Emergency Physicians of Medical Centre Haaglanden and Bronovo-Nebo
- The Netherlands Society of Emergency Physicians (NVSHA)
- The Netherlands Society of Emergency Nurses (NVSHV)
- Traumacentrum West
- Department of Surgery, Medical Centre Haaglanden and Bronovo-Nebo
- Department of Internal Diseases and Gastroenterology, Medical Centre Haaglanden and Bronovo-Nebo
- ChipSoft

Copyright © Christien van der Linden, 2015
All rights reserved. No part of this publication may be reproduced or transmitted in any form by any means, electronic or mechanical, including photocopy, recording or any information storage and retrieval system, without written permission of the author.
EMERGENCY DEPARTMENT CROWDING
FACTORS INFLUENCING FLOW

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor
aan de Universiteit van Amsterdam
op gezag van de Rector Magnificus
prof. dr. D.C. van den Boom
ten overstaan van een door het college voor promoties ingestelde
commissie,
in het openbaar te verdedigen in de Aula der Universiteit
op donderdag 5 maart 2015, te 13:00 uur

door

Maria Christina van der Linden

geboren te ‘s-Gravenhage
PROMOTIECOMMISSIE

Promotores: Prof. dr. J.C. Goslings
Prof. dr. R.J. de Haan

Copromotores: Dr. R. Lindeboom
Prof. dr. C. Lucas

Overige leden: Prof. dr. P.J.M. Bakker
Prof. dr. P. Patka
Prof. dr. W.C. Peul
Dr. S.J. Rhemrev
Prof. dr. I.B. Schipper

Faculteit der Geneeskunde
Emergency department crowding is the elephant standing in the room; it is very difficult to describe how heavy he is, how bad he smells, and just when the floor might give

CONTENTS

Chapter 1 General introduction and outline of the thesis 9

PART I CROWDING IN DUTCH EMERGENCY DEPARTMENTS

Chapter 2 Emergency department crowding in the Netherlands: managers’ experiences 23

PART II INPUT OF THE EMERGENCY DEPARTMENT

Chapter 3 Self-referring patients at the emergency department: appropriateness of emergency department use and motives for self-referral 41
Chapter 4 Unscheduled return visits to a Dutch inner-city emergency department 55
Chapter 5 Rate, characteristics and factors associated with high emergency department utilization 71

PART III THROUGHPUT OF THE EMERGENCY DEPARTMENT

Chapter 6 Refining a triage system for use in emergency departments 87
Chapter 7 Managing patient flow with triage streaming to identify patients for Dutch emergency nurse practitioners 95
Chapter 8 Diagnostic accuracy of emergency nurse practitioners versus physicians related to minor illnesses and injuries 107

PART IV OUTPUT OF THE EMERGENCY DEPARTMENT

Chapter 9 Walkouts from the emergency department: characteristics, reasons and medical care needs 121
Chapter 10 A flexible acute admission unit to decrease length of stay of admitted emergency department patients: emergency nurses’ perceptions 135
Chapter 11 Evaluation of a flexible acute admission unit: effects on transfers to other hospitals and patient throughput times 147