

**Habits, hassle, and health:
how do blood donors respond to a temporary deferral due
to low haemoglobin?**

**Tessa Hillgrove
PhD Candidate**

**Discipline of Public Health
School of Population Health and Clinical Practice
University of Adelaide**

**Thesis submitted in fulfilment of the requirements for the
Degree of Doctor of Philosophy
April 2009**

Table of contents

TABLE OF CONTENTS	II
LIST OF TABLES	VI
LIST OF FIGURES	IX
LIST OF FIGURES	IX
ABSTRACT	X
ABSTRACT	X
DECLARATION	XII
DEDICATION	XIII
ACKNOWLEDGEMENTS	XIV
1 INTRODUCTION	1
1.1 BACKGROUND AND RATIONALE FOR RESEARCH	1
1.1.1 THE AUSTRALIAN BLOOD SUPPLY	1
1.1.2 TEMPORARY DEFERRAL DUE TO A LOW HAEMOGLOBIN CONCENTRATION	2
1.2 AIMS	3
1.2.1 THE PURPOSE OF THIS RESEARCH	3
1.2.2 OUTLINE OF STUDIES IN THIS THESIS	3
2 LITERATURE REVIEW	5
2.1 CHAPTER OUTLINE	5
2.2 BACKGROUND	5
2.2.1 DONOR DEFERRAL FOR A LOW Hb CONCENTRATION	5
2.2.2 DEFINITIONS OF ANAEMIA, IRON DEFICIENCY, AND IRON DEFICIENCY ANAEMIA	5
2.2.3 THE IMPACT OF IRON DEFICIENCY	6
2.2.4 SCREENING BLOOD DONORS FOR IRON DEFICIENCY	8
2.2.5 SEEKING MEDICAL INVESTIGATIONS AFTER DEFERRAL	12
2.3 WHY DO PEOPLE DONATE BLOOD?	14
2.3.1 DESCRIBING THE DONOR POPULATION: PAST RESEARCH INTO THE MOTIVATIONS AND SOCIO-DEMOGRAPHIC CHARACTERISTICS OF BLOOD DONORS	16
2.3.2 RETENTION OF BLOOD DONORS: RECENT RESEARCH AND IMPLICATIONS FOR RETENTION STRATEGIES	17
2.3.3 THE PROCESS OF BECOMING A COMMITTED DONOR	21
2.3.4 CEASING DONATION: WHY DO DONORS “LAPSE”?	22
2.4 THE IMPACT OF TEMPORARY DEFERRAL ON DONOR RETURN	24
2.4.1 WHY ARE DEFERRED DONORS LESS LIKELY TO RETURN?	27
2.4.2 INCREASING THE LIKELIHOOD OF RETURN AFTER DEFERRAL	29

2.5	THEORETICAL PERSPECTIVES	31
2.5.1	THEORETICAL UNDERSTANDINGS OF ROLE IDENTITY, AND IMPLICATIONS FOR VOLUNTEER BEHAVIOUR IN CONTEMPORARY AUSTRALIA	32
2.5.2	THE THEORY OF THE SPURNED PHILANTHROPIST: WHAT HAPPENS WHEN A DONOR'S OFFER OF ASSISTANCE IS REJECTED?	36
2.5.3	THE THEORY OF REASONED ACTION AND THE THEORY OF PLANNED BEHAVIOUR IN PREDICTING BLOOD DONATION	37
2.6	SUMMARY	40
3	<u>OVERVIEW OF METHODS</u>	<u>42</u>
3.1	OUTLINE	42
3.2	DEVELOPMENT OF METHODS	42
3.3	RESEARCH QUALITY	45
3.4	ETHICS	47
3.5	RESEARCHER'S BACKGROUND	48
3.6	PRESENTATION OF RESULTS	49
4	<u>RESULTS: PART ONE</u>	<u>51</u>
4.1	CHAPTER OUTLINE	51
4.2	AIM	51
4.3	METHODS	51
4.3.1	STUDY DESIGN	51
4.3.2	SAMPLE	52
4.3.3	IDENTIFICATION OF SAMPLE	52
4.3.4	ANALYTICAL APPROACH	53
4.3.5	DATA LIMITATIONS	55
4.4	RESULTS	56
4.4.1	WHAT CHARACTERISTICS ARE ASSOCIATED WITH LOW HB DEFERRAL?	56
4.4.2	FACTORS ASSOCIATED WITH RETURN DURING THE FOLLOW-UP PERIOD	60
4.4.3	FACTORS ASSOCIATED WITH THE TIME TAKEN TO RETURN	88
4.4.4	THE IMPACT OF DEFERRAL ON DONATION FREQUENCY	108
4.5	SUMMARY	117
4.6	DISCUSSION	118
4.6.1	LIMITATIONS AND DATA ISSUES	122
4.7	CONCLUSION	123
5	<u>RESULTS: PART TWO</u>	<u>124</u>
5.1	CHAPTER OUTLINE	124
5.2	AIM	124
5.3	METHODS	124
5.3.1	SAMPLE	125
5.3.2	ACCESSING PARTICIPANTS	126
5.3.3	DATA COLLECTION	127
5.3.4	THE PARTICIPANTS	128
5.3.5	ANALYTICAL APPROACH	131
5.4	RESULTS	136
5.4.1	PRESENTATION OF THE RESULTS	136
5.4.2	SUMMARY OF THEORETICAL PERSPECTIVES	136
5.4.3	VIEWS ON GIVING BLOOD	137

5.4.4	CEASING DONATION	148
5.4.5	RETURNING PROMPTLY AFTER DEFERRAL	154
5.4.6	THE “HASSLE” OF DEFERRAL	155
5.4.7	DELAYING RETURN: “IT’S AN EASY THING TO PUT OFF”	163
5.4.8	KEYS TO UNDERSTANDING PROMPT RETURN FROM DEFERRAL	166
5.5	SUMMARY	174
5.6	DISCUSSION AND IMPLICATIONS	174
5.6.1	LIMITATIONS	177
5.7	CONCLUSION	178
6	<u>RESULTS: PART THREE</u>	180
6.1	CHAPTER OUTLINE	180
6.2	AIM	180
6.3	METHODS	181
6.3.1	STUDY DESIGN	181
6.3.2	SAMPLE	182
6.3.3	DEVELOPMENT OF THE QUESTIONNAIRE	183
6.3.4	ADMINISTRATION OF THE QUESTIONNAIRE	185
6.3.5	ANALYTICAL APPROACH	186
6.4	RESULTS	187
6.4.1	RESPONSE RATE	187
6.4.2	DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS	187
6.4.3	UNDERSTANDING OF THE RATIONALE FOR DEFERRAL	190
6.4.4	REFLECTIONS ON THE DEFERRAL APPOINTMENT	190
6.4.5	SEEKING FURTHER INVESTIGATIONS	194
6.4.6	CHANGES SINCE DEFERRAL	202
6.4.7	PERSPECTIVES ON GIVING BLOOD	203
6.4.8	INTENTION TO RETURN ONCE ELIGIBLE	209
6.5	SUMMARY OF RESULTS	223
6.6	DISCUSSION	224
6.6.1	THEORY OF THE SPURNED PHILANTHROPIST	228
6.6.2	LIMITATIONS	229
6.7	CONCLUSION	229
7	<u>RESULTS: PART FOUR</u>	230
7.1	CHAPTER OUTLINE	230
7.2	AIM	230
7.3	METHODS	231
7.3.1	STUDY DESIGN	231
7.3.2	SAMPLE	231
7.3.3	IDENTIFICATION OF SAMPLE	232
7.3.4	DEVELOPMENT OF THE QUESTIONNAIRE	233
7.3.5	ANALYTICAL APPROACH	237
7.4	RESULTS	239
7.4.1	DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS	239
7.4.2	DEFERRAL IN HINDSIGHT	241
7.4.3	SEEKING FURTHER INVESTIGATIONS AFTER DEFERRAL	250
7.4.4	FACTORS ASSOCIATED WITH RETURN WITHIN SIX MONTHS OF BEING ELIGIBLE	261
7.4.5	EARLY RETURN FROM DEFERRAL	271
7.4.6	INTENTION TO RETURN IN THE FUTURE	272
7.4.7	TO WHAT EXTENT DOES INTENTION TO GIVE BLOOD PREDICT BEHAVIOUR?	275

7.4.8	FACTORS ASSOCIATED WITH INTENTION TO RETURN IN THE SIX MONTHS FOLLOWING THE SURVEY	277
7.4.9	ANALYSIS OF FACTORS ASSOCIATED WITH ACTUAL RETURN FOLLOWING THE SURVEY	285
7.4.10	VALIDATION OF NBMS RECORDS AGAINST SELF-REPORTED DONATION HISTORY	293
7.5	SUMMARY OF RESULTS	294
7.6	DISCUSSION	295
7.6.1	DATA LIMITATIONS	301
7.7	CONCLUSION	303
8	<u>FINAL DISCUSSION</u>	<u>304</u>
8.1	INTRODUCTION	304
8.2	OVERVIEW OF KEY FINDINGS	304
8.2.1	THE IMPACT OF DEFERRAL ON SUBSEQUENT DONATION PATTERNS	304
8.2.2	WHAT PROCESSES ARE RESPONSIBLE FOR THE DISRUPTION TO DONATION PATTERNS?	305
8.2.3	FACTORS MEDIATING RETURN AFTER DEFERRAL	306
8.2.4	INTENTION TO RETURN	309
8.2.5	PERCEPTIONS OF THE DEFERRAL EVENT	310
8.3	HOW DO THE FINDINGS COMPARE TO THE LITERATURE ON RETURN AFTER TEMPORARY DEFERRAL?	311
8.3.1	LITERATURE ON RETURN FROM TEMPORARY DEFERRAL	311
8.3.2	TO WHAT EXTENT DOES THEORY EXPLAIN THE EFFECT OF DEFERRAL FOR A LOW Hb CONCENTRATION?	314
8.4	DISCUSSION OF METHODS	317
8.4.1	ADVANTAGES OF THE APPROACH	317
8.4.2	LIMITATIONS	318
8.5	IMPLICATIONS	319
8.5.1	RECOMMENDATIONS FOR PRACTICE	319
8.5.2	FUTURE RESEARCH	328
8.6	CONCLUSION	330
	<u>BIBLIOGRAPHY</u>	<u>332</u>
	<u>APPENDICES</u>	<u>340</u>

List of Tables

Table 1: Length of deferral for those deferred for a reason other than low Hb	53
Table 2: Timeline of the study period for the deferred group	54
Table 3: Timeline of the study period for the comparison group	54
Table 4: Sex distribution of study groups	56
Table 5: Age distribution of study groups	56
Table 6: Age distribution of study groups: for females	57
Table 7: Age distribution of study groups: for males	57
Table 8: Proportion of first time donors in study groups	58
Table 9: Number of attendances made in twelve months prior to the reference donation	58
Table 10: Number of donations made in twelve months prior to reference donation	59
Table 11: Distribution of low Hb deferrals prior to reference donation	59
Table 12: Distribution of deferrals for another reason prior to reference donation	60
Table 13: Univariable logistic regression models for return during three year follow-up period, deferred group	62
Table 14: Results of fitting multivariable model of return during three year follow-up period, with significant univariable effects, deferred group	63
Table 15: Univariable logistic regression models for return during Year 1, deferred group	64
Table 16: Results of fitting multivariable model of return during Year 1, with significant univariable effects, deferred group	65
Table 17: Univariable logistic regression models for return during Year 2, deferred group	67
Table 18: Results of fitting multivariable model of return during Year 2, with significant univariable effects, deferred group	68
Table 19: Preliminary final model of return in Year 2, deferred group	69
Table 20: Univariable logistic regression models for return during Year 3, deferred group	71
Table 21: Results of fitting multivariable model of return during Year 3, with significant univariable effects, deferred group	72
Table 22: First preliminary final model of return in Year 3, deferred group	73
Table 23: Results of fitting multivariable model of return during Year 2, amongst donors returning in Year 1, deferred group	74
Table 24: Results of fitting multivariable model of return during Year 3, amongst donors returning in Year 1, deferred group	75
Table 25: Results of fitting multivariable model of return during Year 3, amongst donors returning in Year 1, deferred group	76
Table 26: Univariable logistic regression models for return during three year follow-up period, comparison group	78
Table 27: Results of fitting multivariable model of return during three year follow-up period, with significant univariable effects, comparison group	79
Table 28: First preliminary model of return, comparison group	79
Table 29: Proportion returning to donate by group	81
Table 30: Proportion of deferred group returning during follow-up, by first time donor status	82
Table 31: Proportion of comparison group returning during follow-up, by first time donor status	82
Table 32: Factors predicting return during Year 1, all donors	83
Table 33: Factors predicting return in Year 2, given a donor returned in Year 1	84
Table 34: Factors predicting return in Year 2, given a donor returned in Year 1, adjusting for number of donations given in Year 1	85
Table 35: Logistic regression of likelihood of return in Year 3, given return in Year 1 & Year 2, adjusting for number of donations given in each year	86
Table 36: First preliminary final model of hazard ratio	90
Table 37: Second preliminary final model of hazard ratio	91
Table 38: Results of Cox proportional hazards regression for deferred donors, by age group	97
Table 39: Results of Cox proportional hazards regression for deferred donors, by age group, for males	98
Table 40: Results of Cox proportional hazards regression for deferred donors, by age group, for females	98
Table 41: Results of Cox proportional hazards regression for deferred donors, by recent donation frequency, for males	102
Table 42: Results of Cox proportional hazards regression for deferred donors, by recent donation frequency, for females	102
Table 43: Results of Cox proportional hazards regression for deferred donors, by length of donation history	105

Table 44: Number of donations given in each year of follow-up (including non-returning donors)	108
Table 45: Number of donations given in each year of follow-up- for donors who returned during the year*	109
Table 46: Negative binomial regression of number of donations made in Year 2 of follow-up, given a donor returned during Year 1	110
Table 47: Negative binomial regression of number of donations made in Year 2 of follow-up, given a donor returned during Year 1, adjusted for number of donations in Year 1	111
Table 48: Negative binomial regression of number of donations made in Year 3, given a donor returned during the Year 1 and Year 2, adjusted for donations in Year 1 and Year 2	112
Table 49: Proportion of returning donors deferred due to low Hb during the follow-up period	113
Table 50: Proportion of returning donors deferred for another reason during follow-up period	114
Table 51: Negative binomial regression of number of donations made in follow up period, amongst returning donors, deferred group	115
Table 52: Negative binomial regression of number of donations made in follow up period, amongst returning donors, comparison group	115
Table 53: Comparison of demographic characteristics and life stages of participants and non-participants	129
Table 54: Participant demographic and life stage characteristics	130
Table 55: Framework used for indexing: categories and sub-categories	133
Table 56: Key themes for analysis	135
Table 58: Demographic characteristics of respondents	188
Table 59: Proportion with a history of low Hb/low iron, or previous deferral	189
Table 60: Understanding of the extent to which rationales were a consideration for deferral	190
Table 61: Rating of aspects of the deferral event	191
Table 62: Proportion given and understanding letter	191
Table 63: Ratings of possible emotional responses to deferral	193
Table 64: Investigations performed to investigate low Hb	194
Table 65: Underlying conditions (of those who saw their GP)	196
Table 66: Donor provided with an explanation of why their Hb levels were low	198
Table 67: Explanation for low Hb levels	198
Table 68: Proportion given specific advice by their doctor	199
Table 69: Proportion given advice about returning to give blood	200
Table 70: Source of information for lifestyle changes	202
Table 71: Reason attributed to low Hb	202
Table 72: Self-assessed ease of giving blood	203
Table 73: Univariable logistic regression models for certainty of return, demographic and donation characteristics	212
Table 74: Univariable logistic regression models for certainty of return, aspects of the deferral experience	213
Table 75: Univariable logistic regression models for certainty of return, seeking further investigations and attributed cause of low Hb	216
Table 76: Univariable logistic regression models for certainty of return, self-perceptions as a donor	217
Table 77: Results of fitting a multivariable model with significant univariable effects	217
Table 78: Results of fitting a second multivariable model with significant univariable effects	219
Table 79: Preliminary final model containing significant main effects	221
Table 80: Demographic characteristics of respondents (from NBMS records)	239
Table 81: Donation Characteristics of repeat donors (self-reported)	240
Table 82: Reasons for low Hb suggested by interview nurses, among those given this information at deferral	241
Table 83: Dietary advice suggested by interview nurses, among those given advice at deferral	242
Table 84: Preferred differences to explanation and advice, among those dissatisfied with this aspect of deferral	243
Table 85: Preferred differences to care, among those dissatisfied with this aspect of deferral	244
Table 86: Proportion given and reading brochures	245
Table 87: Emotional responses to deferral	246
Table 88: Descriptions of respondents' understandings of the reason for their deferral	248
Table 89: The length of time donors believed they were deferred	249
Table 90: People told about deferral?	250
Table 91: Time taken to visit the GP	250
Table 92: Who saw their GP? Demographic characteristics and donation history	251
Table 93: Who saw their GP? Aspects of the deferral appointment	252
Table 94: Among those who had further tests performed by a medical practitioner, types of investigations	252
Table 95: Among those who had blood tests taken by their GP, outcome of the test results	253

Table 96: Among those given a reason for low Hb by their doctor, summary of the reasons	253
Table 97: Amongst those who saw their GP, what were donors told to do to improve their low Hb?	255
Table 98: Serious illness identified during investigation	257
Table 99: Among those who made changes since deferral, coded responses of the changes made	260
Table 100: Univariable logistic regression models for return within 6 months of being eligible, demographic and donation characteristics	263
Table 101: Univariable logistic regression models for return within 6 months of being eligible, aspects of the deferral experience	264
Table 102: Univariable logistic regression models for return within 6 months of being eligible, seeking further investigations	265
Table 103: Univariable logistic regression models for return within 6 months of being eligible, other factors	266
Table 104: Results of fitting multivariable model of return prior to survey, using significant univariable effects (amongst donors who saw their GP)	267
Table 105: Results of fitting multivariable model of return prior to survey, with significant univariable effects (amongst all donors (no GP variables))	268
Table 106: First preliminary model of return prior to survey	269
Table 107: Second preliminary final model of return prior to survey containing significant main effects	270
Table 108: Outcome of early return donation	271
Table 109: Intention to return within next 6 months	272
Table 110: Reason given for being “very unlikely” to return	273
Table 111: Reason given for being “somewhat unlikely” to return	273
Table 112: Reason given for being “undecided” about return	274
Table 113: Comparison of self-assessed likelihood of return, and actual return during follow-up period 2	276
Table 114: Univariable analysis for actual return in follow-up period 2, by intention to return	277
Table 115: Univariable logistic regression models for intention to return, demographic and donation characteristics	278
Table 116: Univariable logistic regression models for intention to return, aspects of the deferral experience	279
Table 117: Univariable logistic regression models for intention to return, seeking further investigations	280
Table 118: Univariable logistic regression models for intention to return, other factors	280
Table 119: Results of fitting multivariable model of intention to return, with significant univariable effects (amongst repeat donors who saw their GP)	281
Table 120: Results of fitting multivariable model of intention to return, with significant univariable effects (amongst all repeat donors (no GP variables))	282
Table 121: Preliminary final model of intention to return, containing significant main effects	283
Table 122: Univariable logistic regression models for return after the survey, demographic and donation characteristics	285
Table 123: Univariable logistic regression models for return after the survey, aspects of the deferral experience	287
Table 124: Univariable logistic regression models for return after the survey, seeking further investigations	287
Table 125: Univariable logistic regression models for return after the survey, other factors	288
Table 126: Results of fitting multivariable model of return following the survey, with significant univariable effects (amongst all donors who saw their GP)	288
Table 127: Results of fitting multivariable model of return following the survey, with significant univariable effects (amongst all donors)	290
Table 128: First preliminary final model of return following the survey, containing significant main effects	291
Table 129: Proportion of new donors (NBMS vs. self-assessment)	293
Table 130: Number of donations given in 12 months prior to deferral, NBMS vs. self-assessment	293

List of Figures

Figure 1: Donor deferral due to a low haemoglobin concentration (adapted from SOPs)	10
Figure 2: Sequential Explanatory design (adapted from (Creswell, Plano Clark et al. 2003))	43
Figure 3: Overview of the research methods used investigate the impact of deferral due to low Haemoglobin	44
Figure 4: Plot of sensitivity versus 1-specificity (ROC Curve)	64
Figure 5: Plot of sensitivity versus 1-specificity (ROC Curve)	70
Figure 6: Significant predictors of return in each year of follow-up in the deferred group	77
Figure 7: Plot of sensitivity versus 1-specificity (ROC Curve)	81
Figure 8: Time to return, by study group	88
Figure 9: Hazard estimates smoothed over the three year follow-up period	89
Figure 10: Hazard estimates smoothed to show hazard each week	90
Figure 11: Factors influencing survivorship amongst deferred donors	92
Figure 12: Time to return for low Hb deferred donors, by sex	93
Figure 13: Hazard estimates smoothed over the three year follow-up period, by sex	94
Figure 14: Hazard estimates smoothed week by week, by sex	94
Figure 15: Hazard estimates smoothed over the three year follow-up period, by sex (comparison group)	95
Figure 16: Hazard estimates smoothed week by week, by sex (comparison group)	95
Figure 17: Time to return for low Hb deferred donors, by age	96
Figure 18: Hazard estimates smoothed over the three year follow-up period, by age	97
Figure 19: Time to return for low Hb deferred donors, by new donor status	99
Figure 20: Hazard estimates smoothed over the three year follow-up period, by new donor status	100
Figure 21: Hazard estimates smoothed week by week, by new donor status	100
Figure 22: Time to return for low Hb deferred donors, by recent donation frequency	101
Figure 23: Hazard estimates smoothed over the three year follow-up period, by recent donation frequency	103
Figure 24: Hazard estimates smoothed week by week, by recent donation frequency	103
Figure 25: Time to return for low Hb deferred donors, by donation history	104
Figure 26: Hazard estimates smoothed over the three year follow-up period, by donation history	105
Figure 27: Hazard estimates smoothed week by week, by donation history	106
Figure 28: Time to return for low Hb deferred donors, by deferral for low Hb prior	106
Figure 29: Personal benefits of being a blood donor	146
Figure 30: Pathway to unintentionally lapsing from donation	151
Figure 31: Conceptual model explaining likelihood of return after a temporary deferral for low Hb	170
Figure 32: Shift in likelihood of return after a temporary deferral for low Hb	172
Figure 33: Shift in likelihood of return: for a working female donor with children	172
Figure 34: Shift in likelihood of return: when return is facilitated by giving in a group and donation is viewed as personally rewarding	173
Figure 35: Timeline for deferral and survey for the survey of experiences seeking further investigations	186
Figure 36: Rating of the extent to which deferral was a surprise	192
Figure 37: Rating of whether the donor would have given at deferral	193
Figure 38: Distribution of role-merger score	204
Figure 39: Factors associated with role identity score	206
Figure 40: Distribution of self-efficacy score	207
Figure 41: Factors associated with self-efficacy to return once eligible	209
Figure 42: Intention to return to donate	210
Figure 43: Plot of sensitivity versus 1-specificity (ROC curve)	222
Figure 44: Factors associated with intention to return in final logistic regression model	222
Figure 45: Timeline for deferral, survey and follow-up periods for study	231
Figure 46: Summary of pathways following deferral	234
Figure 47: Plot of sensitivity versus 1-specificity (ROC Curve)	271
Figure 48: Plot of sensitivity versus 1-specificity (ROC Curve)	284
Figure 49: Plot of sensitivity versus 1-specificity (ROC Curve)	292
Figure 50: Significant pathways predicting intention to donate & actual donation before and after the survey	292

Abstract

This thesis explored the impact on whole blood donors of a six month deferral from giving blood due to a low haemoglobin (Hb) concentration. The aims were two-fold: first, to quantify the effect of a temporary deferral on donation patterns once eligible to return, and second, to identify the processes contributing to the effect. The mixed methods design utilised four distinct research phases: statistical analysis of donation patterns over a three year period, surveys of whole blood donors three and twelve months after deferral, and semi-structured interviews with 25 blood donors in the weeks immediately following deferral.

Deferral for a low Hb increased the likelihood of non-return in both new and repeat donors, and, amongst those who did return, delayed first return, reduced donation frequency and increased the likelihood of drop-out in later years.

Qualitative interviews suggested that, predominantly, individuals give blood because it represents an easy and convenient way to help others, and provides additional rewards, such as enhancing positive self-concepts and a free health check. Returning promptly after deferral appears to be related to three aspects of a person and his/her context: an individual's other obligations, especially parenting; the extent to which donation is considered personally rewarding; and whether donation arrangements were facilitated by a range of supports prior to deferral.

Over three quarters of surveyed deferred donors seek further advice and investigations from their medical practitioner and nearly half of those are encouraged to change their donation patterns. With the exception of having a low haemoglobin level confirmed at follow-up testing, experiences seeking further investigations were not associated with either intentions or return.

Triangulation of findings suggests that deferral disrupts the habit of regular donation, and that this disruption makes donors more vulnerable to changes to their personal circumstances or collection practices. Deferral may also increase the perceived inconvenience of the activity, decrease self-perceptions of competence and good health, and diminish the "blood donor" identity.

Practical implications of these findings are recommendations that may increase retention of deferred donors, including encouraging donors to return promptly once eligible, enhancing the convenience of blood donation, and improving aspects of the deferral event.

Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968.

..... 09/04/09

Dedication

This thesis is dedicated to my parents, for their constant love, support and encouragement.

Acknowledgements

I benefited from a wonderful supervisory panel. First, I wish to thank my principal supervisor Prof Philip Ryan for his wisdom, guidance, and seemingly endless patience. To A/Prof Vivienne Moore, thanks for your passion, enthusiasm, and understanding. I am indebted to Dr Kathleen Doherty, who was responsible for sourcing the initial funding for the project and provided much encouragement and good cheer.

This research was supported by an internal Australian Red Cross Blood Service (ARCBS) project grant and an ARC-Linkage Grant (LP0669248). I am grateful to a number of staff at the ARCBS, particularly to members of the Data Warehouse team for their assistance in obtaining data, and senior managers in the Donor Services area for their support of the project.

Thanks to Thomas Sullivan from DMAC for sharing his statistical expertise.

Many thanks to my friends and family for their love and support over the last four years. There are a number of individuals who particularly helped in the final stages of the PhD. Sharyn Goudie offered constant encouragement and social support while I was writing up, and provided comments on numerous chapter drafts. Michelle Carr Swift provided feedback on my qualitative chapter. My father Lewis Hillgrove assisted in proof-reading.

A special thanks to my husband Ben for helping me keep it all in perspective and for providing love, encouragement and support.

To my co-workers & fellow students Sue Heatley and Natalie Villalta, thanks for the friendship and camaraderie. Thanks also to my fellow PhD students (past and present), in particular Dr Adam Elshaug, Emily Steele, Gemma Carey, James Smith, Dr Catherine Chittleborough, Alana Hansen, Rosie King, Jesia Berry, Lisa Yelland, and Natasha Howard, for the friendship and for generously sharing your expertise despite your own heavy workloads.

Professional editors, Bill & Rose Winsor, were used in the preparation of the thesis for submission, following the guidelines of the Australian Standards for Editing Practice.

Finally, this research could not have been completed without the assistance of the many blood donors who participated in surveys, pilot studies, and interviews. Thank you.