

CONTENTS

The New Christchurch Women’s Hospital	2	Department of Paediatric Medicine Report	87
The CEO Foreword	3	Paediatric Endocrinology and Diabetes Report	90
Introduction	4	Paediatric Surgery Report	92
Cultural Perspective – Tikanga Maori	5	Paediatric Oncology / Haematology (South Island Child Cancer Service) Report	97
MATERNITY SERVICE			
Maternity Service Overview	6	A Late effects assessment programme (LEAP) for Children and Adolescents with Cancer Report	99
Primary Maternity Units Report	7	Telemedicine Report	100
Obstetric Clinical Report	10	Child Health Nursing	101
Caesarean Section Report	32	Clinical Nurse Educators Child Health Cluster Report	103
Fetal Medicine Report	42	Community Services Report	105
Diabetes in Pregnancy Report	49	Hospital Play Specialists / Playroom Services Report	109
Perinatal Mortality Report	53	Children’s Cancer and Developmental Genetics Research Group Report	110
Obstetric Anaesthetic Report	55	The Research into the Processes that cause Anorectal Malformations	111
Lactation Service Report	59	ALLIED HEALTH	
GYNAECOLOGY SERVICE			
Gynaecology Service Overview	62	Chaplaincy Report	113
Gynaecology Outpatient Clinics Report	64	Child Protection Service Report	115
Colposcopy and Hysteroscopy Report	65	Infection Control Report	117
The Fertility Centre Report	67	Nutrition Services Report - Child Health	118
Gynaecological Oncology Service Report	70	Nutrition Services Report - Women’s & Children’s Health	120
Lyndhurst Day Hospital Report	72	Physiotherapy Report	121
GP Liaison Report	74	Social Work & Counselling Service Report	122
NEONATAL SERVICE			
Neonatal Service Overview	75	Radiology Report	124
Neonatal Clinical Nurse Educator Report	76	Health and Safety Report	126
Neonatal Outreach Report	77	List of Tables and Figures	127
Neonatal Clinical Report	79		
CHILD HEALTH SERVICE			
Child Health Service Overview	86		

THE NEW CHRISTCHURCH WOMEN'S HOSPITAL

The new Christchurch Women's Hospital was open to the public and operational from the 30th March 2005. The hospital was then officially opened on the 6th May 2005 by Prime Minister Helen Clark, with the then Minister of Health Annette King in attendance.

The New Christchurch Women's Hospital includes:

- 33 Gynaecological beds
- 37 Neonatal beds
- 45 Maternity beds (antenatal and postnatal)
- 15 Birthing beds
- 5 Assessment beds in Birthing Suite
- 3 Recovery beds in Birthing Suite
- 2 Acute Observation beds in Birthing Suite
- 2 Theatres in Birthing Suite
- 5 Theatres in Day Surgery.



- Ground Floor** - Gynaecology and Maternity Outpatients, Fetal Maternal Medicine, Radiology
1st Floor - Day Surgery Unit
2nd Floor - Gynaecology Unit
3rd Floor - Birthing Suite, School of Medicine
4th Floor - Neonatal Unit
5th Floor - Maternity

FOREWORD

It is a pleasure to write the foreword to this report because it reflects one of our key challenges; how to measure and improve the outcomes and the quality of the services we provide for the people of Canterbury from this District Health Board. In years gone by, the traditional process in health was to deal with the matter in hand and keep relatively simple records of actions and outcomes. There have been notable exceptions over the years, where individuals or professional groups have continuously monitored their performance and striven to improve. It is very encouraging to see a whole service combining to do this as a body. It is only through carefully recording the work that we do and the outcome for our patients that we will identify opportunities for future improvement. I have confidence that Canterbury has an excellent health service which would match many of the best in the world. However, it is never enough to rest on our laurels. The in depth analysis from the partnership of Management and Clinicians in Women's Health and now Children's Health in this series of annual reports is fundamental to quality improvement and also future planning.

Clearly there are challenges, such as how to manage births safely while at the same time maintaining a lower caesarean rate and for Child Health to work more closely with primary care and reduce demand for acute admissions. I know that the services are keen to address these and other issues and I look forward to continued updates on their successes. The commitment of the many dedicated health professionals in Women's and Children's Health is evident through this report and also the many positive accolades they regularly receive from the public. I thank them for their work and the management team that ably supports them.

Gordon Davies - Chief Executive Officer - CDHB

INTRODUCTION

The promotion of ever improving standards of clinical care is greatly assisted through the collection and analysis of data.

Services such as Women's and Children's Health who are encouraging discussion around clinical care and the outcomes achieved are to be supported in these endeavours. As more is learned about promoting patient safety the importance of focus on quality of care becomes apparent.

The Annual Clinical Report is still in its infancy and we are learning as we go. There is immense value from determining what are key clinical performance indicators, how do we capture these, what is the data telling us, do we need to make changes to the way in which we presently deliver care.

As you read the report that follows know that the staff of Women's and Children's Health are a dedicated team who work beyond position description expectations and hours and who are committed to ever improving the standard of care the service delivers.

Thank you to the team who oversaw the birth of this addition, to all the contributors and to the Women's and Children's Health staff as a whole for the work reflected in the pages to follow.

Pauline Clark - General Manager - Women's & Children's Health

CULTURAL PERSPECTIVE – TIKANGA MAORI

He aha te mea nui o te Ao, he tangata, he tangata, he tangata.
What is the greatest thing in the world? It is people, it is people, it is people.

Cultural Advisory Komiti and Te Komiti Whakarite

Since moving to the new hospital site in March of 2005, I now sit on both committees for Women's & Children's Health and the Maori committee for Christchurch Hospital. These two committees give advice to research projects, policy and procedures and have input into services within each of their respective areas of the Division. Membership to these committees is open to all staff who identify as Maori within both Hospitals. In that time also, I have become a member of Nga Ratonga Hauora - the Maori Health team for both Hospitals. Annette Finlay is the Kaiarahi (Team Leader) and meetings are held on a regular weekly basis for peer supervision and to discuss any issues or concerns that may arise in any of our given areas.

Maternity Services

This year saw a major change in the amount of education offered to staff pertaining to BFHI certification from a cultural perspective, ongoing support to the Lactation Consultants whenever they had a study day or needed input by the Maori Health Worker. I was asked to join the Maternity sub committee for the National Immunisation Register involving several meetings to discuss the implementation of the register and education to staff on how it would work. I continue to work closely with all staff in the maternity area and referrals were made to Maori Health Services from the Team Care Midwives, Independent Midwives and from all staff involved in the patients care. I offer support for both Inpatient and Outpatient wahine and their whanau.

Neonatal Services

Support to this service is given in the way of communication, information sharing, attendance at assessments, ongoing care and karakia (blessing/prayer) to wahine me nga whanau (women and their family) who have peepi (baby/babies) using this service.

Gynaecology Services

Although I cover the whole of the Women's & Children's Health as the sole Maori Health Worker, work in the Gynaecology area continues to take the majority of my time. The support to this area is wide and varied, it includes:

- Visits to the wards for ongoing support to wahine and their whanau that use this service
- Attendance with wahine and their whanau for assessment in both the Outpatient clinics and the Acute Gynaecology Assessment areas
- Education sessions given to both Doctors and Nursing staff on Tikanga Maori (cultural values and beliefs) and how they can best support and meet the needs of Maori using this service
- Referrals come from Lyndhurst Hospital, Fetal Maternal Medicine, CWH Consultants, Social Workers and Nursing Staff
- There is an increasing number of self referrals to Maori Health Services from nga wahine me nga whanau and from Maori Community Support services and General Practitioners who are aware of Maori Health Services available to Maori also.

2005 was a very busy and rewarding year, with lots of positive outcomes and achievements conveyed from both staff and community services in their acknowledgment of my role here as the Maori Health Worker for Women's & Children's Health.

No reira, nga mihi nui ki a koutou katoa. Mauriora ki a tatou katoa
Therefore greetings to you all and wellness to each and every one of us.

Doris Warren - Kaiawhina Whaea me nga Peepi (Maori Health Worker)

MATERNITY SERVICE OVERVIEW

In March 2005 Christchurch Women's Hospital moved to the new facility on the Christchurch Hospital Campus. The move occurred smoothly due to the meticulous planning prior to the event. The new maternity floors at Christchurch Women's Hospital feature single rooms all with ensuite facilities, and innovative art works. This environment has benefited staff and the women of Canterbury alike due to the geography of the building staffing has been challenging and new ways of working have had to be adopted. Post relocation issues occupied the greater part of the year.

The Maternity Service has continued to grow in terms of volumes of women birthing in our facilities.

The three Primary Units saw a reduction in the number of births and postnatal transfers during this period and a concerted effort was made and is ongoing to address this situation. Lincoln and Rangiora both had bathroom renovations during the year, which restricted the use of these units at this time.

The rotation of midwives to meet the New Zealand Midwifery Council requirements was finally completed and embedded into the culture of the service. A Research Midwife was appointed to work with the University Team.

Due to parking issues at the new facility and the normal birthing philosophy that the Christchurch Women's Community Midwives have. It was decided to relocate the team to the Burwood Birthing Unit. This has proven to be very popular with women and staff and the positive result is maintenance of birthing numbers in this unit.

As a result of demand the Lactation Service was extended and following an audit of Canterbury women, antenatal breastfeeding classes were recommenced funded in part for a short time by the public and community health service.

Significant practice change occurred and the NICE guidelines for fetal monitoring were introduced in response to several adverse events. Independent Lead Maternity Carers were also encouraged to attend the education sessions free of charge. Fibronectin monitoring was also introduced, as was lactate monitoring to the Birthing Suite.

The service was also fortunate to have three new obstetrician appointments during the year; Dr Dianne Poad - Clinical Director Obstetrics, Dr Sharron Bolitho - Consultant Obstetrician and Gynaecologist and Dr Tiho Djordjic - Tutor Specialist.

The introduction of the Professional Development Recognition Programme/Quality Leadership Program PDRP/QLP for Midwives during the later part of the year consumed many hours of time we were most fortunate to have the expertise of Becky Hickmott, PDRP Facilitator CDHB to guide us.

During 2005 the educational emphasis has been on Midwifery professional development and the Midwifery Council recertification program.

Jane Waite - Maternity Service Manager

PRIMARY MATERNITY UNITS REPORT

Christchurch has three primary maternity facilities providing flexibility and choice for women in the region. Burwood Birthing Unit is situated in the north east area of Christchurch City and has seven maternity beds and three birth rooms. Lincoln Hospital is situated to the south west of the city and services the Selwyn rural district; it has seven maternity beds and two birth rooms. Rangiora Hospital is thirty minutes north of Christchurch and services the Waimakariri and Hurunui rural districts; it has seven maternity beds, two birth rooms and also has four general convalescent beds.

These primary units are committed to providing safe, flexible and supportive care for women and their families. As such they provide a relaxing family friendly environment, which promotes birth as a normal life event and enhances the mother and baby relationship. Close links to Christchurch Women's Hospital (CWH) are maintained as a means of support and the promotion of safety for women and their babies.

Births

Women who access these units for birth are healthy women with uncomplicated pregnancies. The Section 88 (MoH 2002) guidelines for consultation for specialist referral are used as a basis for identifying those women who are suitable to deliver at primary units. Presently 7.3% of women in the Christchurch region are choosing to give birth in a primary unit; however this does not reflect the numbers that are eligible to birth within these units. Total number of births for primary units was 379 compared to 4807 occurring at CWH.

Table 1 shows the birth numbers for each unit for the last five years. Although the total number of births in 2005 are less than 2004, they are still higher than 2001 and 2002.

Table 1: Primary Unit births over the last five years

Place	2001	2002	2003	2004	2005
BBU	176	195	212	220	205
Lincoln	69	91	86	97	90
Rangiora	82	50	90	90	84
Total	327	336	388	407	379

Table 2 identifies the parity of the women choosing to birth in the primary units. It demonstrates that the majority 70% are multigravid, and 30% are primigravid. This table also shows the high number of women using water during labour at the primary units. The information regarding birth in water is unfortunately incomplete, as data collection has not been fully utilised within the CareSys software system.

Table 2: Labour and birth numbers for all Primary Units in 2005

Type	Burwood	Lincoln	Rangiora	Total
Number of Births	205	90	84	379
Primiparous Births	78 (38%)	23 (25%)	16 (19%)	117 (30%)
Multiparous Births	127 (62%)	67 (75%)	68 (81%)	262 (70%)
Labours using water	138 (67%)	44 (48%)	19 (22%)	201 (53%)
Births in Water	90 (43%)	8 (8%)	3 (3%)	101 (26%)

Transfer to Tertiary Care

The Primary Units have Midwife only services. When a problem is identified during labour, a referral and transfer for specialist consultation is required. This involves transferring the labouring women to CWH by ambulance. These ambulance transfers take between 30 minutes to 1 hour depending on the availability of an ambulance, the density of traffic and the distances involved.

Table 3 shows the number of admissions to each primary unit of women in labour and the number of women who needed to transfer to CWH during their labour. This figure has remained consistently low and this year is 14.5% overall. Once labour was established the most common reason for transfer to CWH was prolonged labour.

Table 3: Admissions and transfers for all Primary Units in 2005

Type	Burwood	Lincoln	Rangiora	Total
Admissions (excluding babies)	668	409	413	1490
Intrapartum admissions	246	102	99	447
Antenatal transfer in labour to CWH	41 (16%)	12 (11%)	12 (12%)	65(14.5%)
Post natal transfers from CWH	409	297	319	1025
Neonatal transfers to CWH	11 (1.7%)	4 (1%)	5 (1.2%)	20 (1.4%)

Neonatal Retrieval to CWH

When a baby becomes unwell in the postnatal period, it becomes necessary to transfer the baby to CWH for specialist neonatal care. This is known as a neonatal retrieval. The neonatal retrieval rate includes babies born in the unit as well as those transferred from CWH following birth. This rate has remained consistently under 2% over the last five years. The primary units appreciate the prompt service and support received from the Neonatal unit.

Postnatal Transfers

The majority of women choose to birth at CWH. A percentage of these will transfer to the primary unit for postnatal care. Table 4 shows the total number of transfers over the last 5 years. In 2005 there was a reduction in the number of women admitted for postnatal care compared to 2003-2004. However, the total number is still over 200 more than in the years 2001-2002. Hopefully this is a temporary decrease related to opening of the new facility.

Table 4: Postnatal transfers for last five years

Place	2001	2002	2003	2004	2005
BBU	325	297	463	437	409
Lincoln	218	205	302	286	297
Rangiora	273	280	311	341	319
Total	816	782	1076	1064	1025

Breastfeeding Rates

The breastfeeding rates across the three primary units remain high with exclusive breastfeeding rates varying between 83% and 87%. The data for breastfeeding is collected and collated monthly thereby maintaining a high degree of accuracy. These high levels reflect the commitment of the women and the skill of the core midwives.

Table 5: Breastfeeding rates for all Primary Units in 2005

Type	Burwood	Lincoln	Rangiora	Total
Exclusive	511 (83%)	346 (87%)	331 (84%)	1188 (85%)
Fully	10 (1.6%)	6 (1.5%)	16 (4.1%)	32 (2.3%)
Partial	50 (8.2%)	37 (9.3%)	34 (8.6%)	121 (8.7%)
Formula fed	38 (6.2%)	5 (1.2%)	14 (3.5%)	57 (4%)

Challenges for 2005

The primary units offer a valuable choice for women to have safe maternity care, with good outcomes, in a local facility. However, they remain under utilised. These units offer individualised care in a quiet and local environment with consistent skilled breastfeeding advice and care. The challenge for 2006 is to explore ways of encouraging Lead Maternity Carers and women to better utilise these facilities.

Anne Atkins - CMW Lincoln

Lesley Dixon - CMW Burwood Birthing Unit

Suzanne Salton - CMW Rangiora

OBSTETRIC CLINICAL REPORT

Introduction

It is reassuring to see the majority of women giving birth at Christchurch Women's Hospital in 2005 went into spontaneous labour, as the evidence would suggest this provides them with the greatest likelihood of a normal vaginal birth. Our rates of intervention to initiate birth are similar to other centres in New Zealand, although our IOL rate is lower than it has been since 2000 when this data was first being regularly collected. The elective caesarean section rate is relatively stable over the past four years ranging between 7.2% and 8.6%. However the implications of the more significant contributor to the overall caesarean rate, that of emergency caesarean sections requires further scrutiny, as there is a subtle rise which will eventually impact on the elective rate in the form of requests for repeat caesarean section performed electively. The management of women who are labouring is therefore of critical importance in striving to achieve vaginal delivery where safely possible.

The Obstetric unit has been active with educational sessions for LMCs in regard to methods of fetal monitoring and advocating the NICE (National Institute of Clinical Excellence) guidelines for fetal monitoring. These support the concept of not utilising continuous cardiotocograph monitoring for low risk women in order to avoid unnecessary intervention. The guideline also defines those women who have identified factors either in their antenatal or intrapartum course which render their baby at higher risk of compromise and consequently recommends that they should have continuous fetal monitoring for labour. The guideline identifies the advantages of fetal scalp sampling for abnormal cardiotocograph recordings in reducing the number of unnecessary caesarean sections and our unit is about to introduce fetal scalp lactate sampling with the intention of improving the success of this method of fetal monitoring. Additionally, we are in the process of purchasing a web based continuing medical education tool for fetal monitoring which will further facilitate midwifery and medical best practice.

The move to senior obstetrician presence on the birthing floor several years ago has had some impact on the stability of our rates of intervention. The increased numbers of women presenting to CWH for birth and the concurrent increase in the complexity of their medical and obstetric circumstances, has further compounded the need for experienced staff both medical and midwifery to provide timely and effective care. It is pleasing to note that our total caesarean section rate has not increased over the last 4 years, despite increased patient complexity.

The increase in patient complexity coupled with increasing absolute birth numbers is leading to a continuous rise in patient load in our tertiary hospital. As a unit, we need to continue to encourage birth in primary units as a safe and satisfying option for low risk women.

Obstetrics Summary Data

Table 1: Summary data

	2001	2002	2003	2004	2005
Total Number of Births at CWH	4241	4149	4433	4670	4807
Total Number of Babies at CWH	4427	4266	4528	4780	4897
Total Normal Vaginal Births at CWH (% of CWH total births)	2490 (58.7%)	2301 (55.5%)	2530 (57.1%)	2543 (54.5%)	2729 (56.8%)
Total Normal Vaginal Births at Primary Units	327	336	388	407	378
Total Births Combined CWH and Primary Units	4568	4485	4821	5077	5185
Total Normal Vaginal Births CWH and Primary Units (% of CWH and Primary Units)	2817 (61.7%)	2637 (58.8%)	2918 (60.5%)	2950 (58.1%)	3107 (59.9%)
Percentage of Women delivering at CWH who were Nulliparous	49.3%	49%	48.9%	52.3%	50.4%
Caesarean Section					
	2001	2002	2003	2004	2005
Caesarean Section – Total (Percentage of all CWH births)	1028 (24.2%)	1174 (28.2%)	1240 (28%)	1331 (28.5%)	1356 (28.2%)
Caesarean Section – As Percentage of all births including primary units	22.5%	26.2%	25.7%	26.2%	26.3%
Elective Caesarean Section –CWH (Percentage of all births)	283 (6.2%)	323 (7.2%)	363 (7.5%)	418 (8.2%)	411 (8.6%)
Emergency Caesarean Section (Percentage of all births)	745 (16.3%)	851 (19.0%)	877 (18.2%)	913 (18.0%)	945 (19.6%)
Instrumental Births					
	2001	2002	2003	2004	2005
Total Instrumental Births (Percentage of all births)	689 (15.1%)	641 (14.3%)	628 (13.0%)	772 (15.2%)	734 (14.2%)
Forceps Births (Percentage of all births)	203 (4.4%)	257 (5.7%)	220 (4.6%)	255 (5.0%)	308 (5.9%)
Ventouse Births (Percentage of all births)	486 (10.6%)	384 (8.6%)	408 (8.5%)	517 (10.2%)	426 (8.2%)
Breech Births					
	2001	2002	2003	2004	2005
Vaginal Birth (Percentage of all births)	31 (0.7%)	33 (0.8%)	35 (0.8%)	24 (0.5%)	26 (0.5%)
Caesarean Delivery (Percentage of all births)	112 (2.6%)	145 (3.5%)	104 (2.4%)	112 (2.4%)	169 (3.5%)

Mode of Birth for 2005

Every year there is a significant focus on mode of birth for the women of Canterbury. Christchurch Women's Hospital's caesarean section rate is often quoted as if this is the most significant measure of the maternity unit's performance. In fact the figures for women giving birth in one of the four hospitals which come under the Canterbury District Health Board umbrella, show that mode of birth hasn't changed significantly for the past four years. This is in spite of an increasing overall maternal age and an increased proportion of women delivering being nulliparous. While the normal vaginal birth rate is less than some would like to see, it is comparable with other maternity units providing a similar level of care around New Zealand.

Table 2: Mode of onset of birth at CWH and Primary Units 2005

	Number of Birthing Women	Percentage
Spontaneous labour	3645	70.3%
Induction of Labour	1032	19.9%
Elective Caesarean Section	411	7.9%
Emergency Caesarean Section Without Labour	97	1.9%
Total	5185	100%

(Excludes St Georges and peripheral birthing units)

Table 3: Number of women birthing by year for Canterbury region

Year	Birth Location					
	Burwood	Lincoln	Rangiora	Total Primary Units	CWH	Total
2001	176	69	82	327(7.2%)	4241	4568
2002	195	91	50	336(7.5%)	4149	4485
2003	212	86	90	388(8.0%)	4433	4821
2004	220	97	90	407(8.0%)	4670	5077
2005	206	89	83	378(7.3%)	4807	5185

Percentage represents number of women birthing in that unit as a percentage of all deliveries for the DHB

Table 4: Breakdown of mode of delivery for CDHB region (public hospitals only)

Mode of Delivery	Number of Birthing Women in Canterbury DHB Maternity Unit	Percentage
Normal Vaginal Birth	3086	59.5%
Forceps	308	5.9%
Ventouse	426	8.2%
Total Instrumental Births	734	14.1%
Caesarean - elective	411	7.9%
Caesarean - emergency	954	18.4%
Total Caesarean Section	1365	26.3%
Total	5185	

Maternal Features

For Christchurch Women's Hospital, the number of births has been gradually climbing since 2002. We have seen a 13.4% increase in numbers of women birthing at Christchurch Women's Hospital over the past 5 years.

Table 5: Number of births at CWH 2001 - 2005

Facility	Number of Births at CWH
2001	4239
2002	4149
2003	4433
2004	4670
2005	4807
Total	22298

Whereas the number of women birthing in primary units was increasing between 2001 and 2004, in 2005 there were fewer women birthing in the primary units compared to 2004. The relocation to our new hospital site in 2005 has seen some additional increase in women wanting to deliver in our new facility where they may have previously chosen to birth elsewhere. The combination of this trend in the primary units and the overall birthing numbers increasing at CWH has placed significant emphasis on the need for women who experience normal birth outcomes to consider early transfer post-natally to other units.

Figure 1: Total number of births at Christchurch Women's Hospital

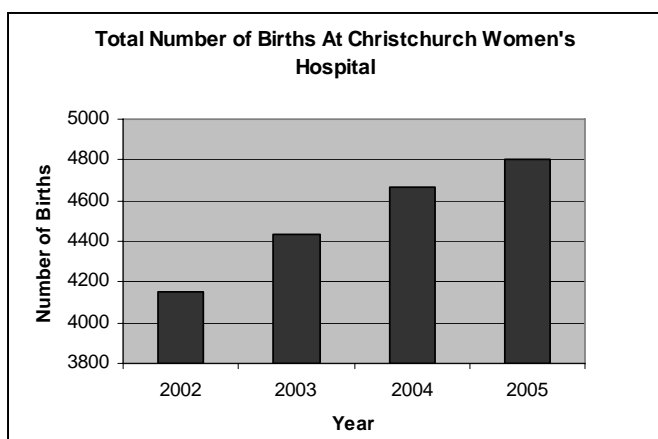


Table 6: Post-natal transfers from CWH to Primary Units

Unit	2003	2004	2005
Rangiora	318	341	338
Lincoln	302	286	297
Burwood	463	437	409
Total	1083	1064	1044

These are the current figures for transfers to the primary units from CWH and there is an overall trend towards fewer transfers over the last year concomitant perhaps with our taking up residence at a new facility. As the demand for bed space at CWH continues to increase with more complicated births, it is hoped that the advantages of postpartum care in the smaller primary units may become more appealing to those who are suitable to transfer.

- The Primary Obstetric Units have the capacity to care for more low risk women. Future identification and encouragement of low risk women who are suited to birthing in these units, but are currently presenting to birth at Christchurch Women's Hospital may both re-distribute the increased patient load and ensure appropriate utilisation of staff and services throughout the Maternity Service.

Table 7: Births in 2005 for Canterbury region

Place of Birth	Birth outcome	
	Vaginal Birth	Caesarean Section
Christchurch Women's	3451	1365
Saint Georges	223	317
Burwood	206	-
Ashburton	162	-
Lincoln	89	-
Rangiora	83	-
Akaroa	3	-
Darfield	2	-
Home Births	Data not available	-
Total	4219	1682
Total Births for District in 2005	5901	
Percentage of all Births for District	71.5%	28.5%

As can be seen the regional vaginal birth rate is 71.5%. This rate has been reasonably consistent for the past four years and is also comparable to other regions within New Zealand. These units should be congratulated in their achievement to affect a consistent rate of vaginal birth in the face of an increasingly complex obstetric population.

Delivery by Non CDHB Domicile

Despite the establishment of the Fetal Maternal Medicine service for the South Island in 2004, the figures for domicile do not suggest a major increase in delivery numbers overall from outlying District Health Boards. It might be expected that babies with fetal abnormalities identified antenatally would birth at CWH preferentially, however although this may occur to facilitate neonatal and paediatric services the actual numbers of women are small. There is some difficulty with domicile not being accurately recorded on the obstetric database, such that in almost 2% the patients domicile is unknown of the purposes of this audit. Likewise, some transfers occurred because women who may have been managed adequately at Grey Hospital were transferred because of no available Obstetrician.

We have seen rather less antenatal transfers to CWH to access the neonatal unit than used to occur previously. Likewise, we have been much less likely to need to transfer women out to other centres since the new Neonatal Unit has been opened as a result of achieving a more flexible arrangement of neonatal care.

Figure 2: Non-CDHB resident delivery trends

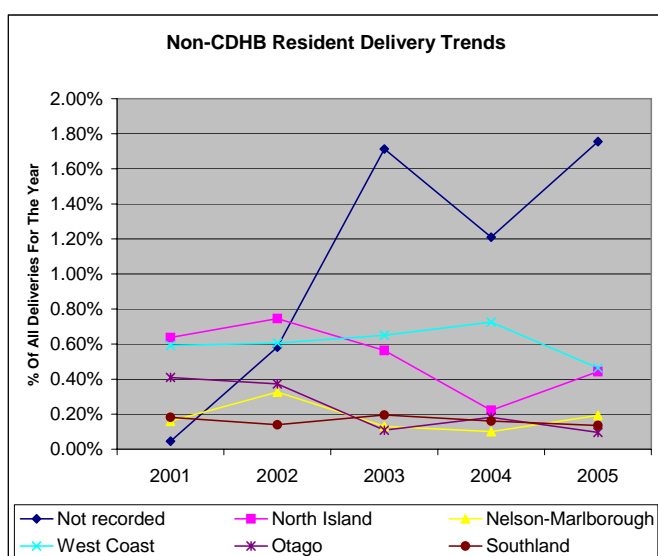


Table 8: Numbers of women from other DHBs birthing at CWH

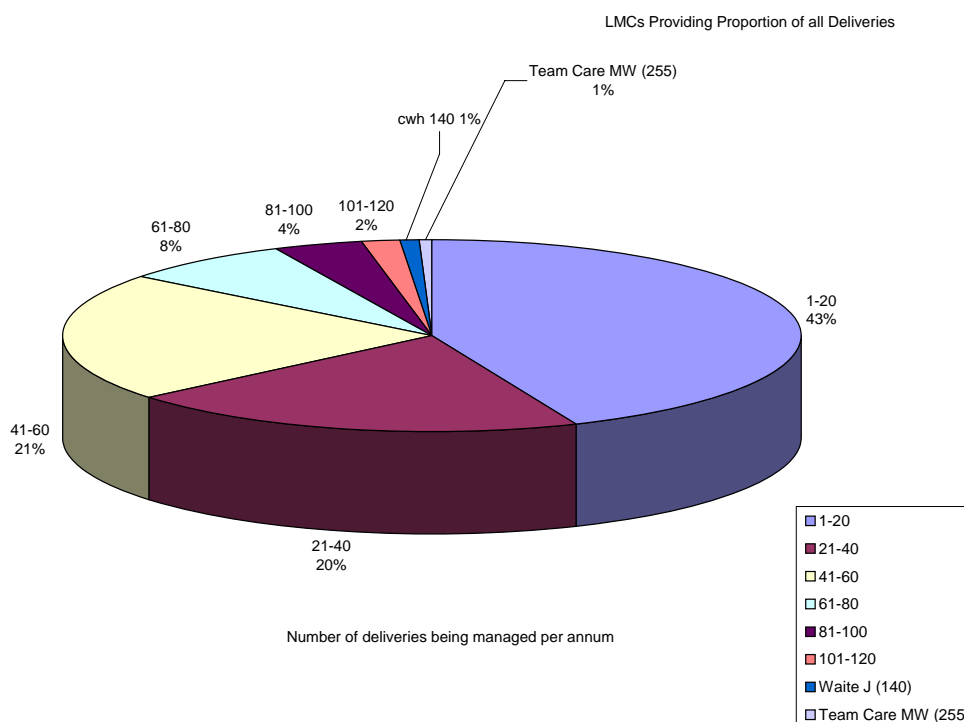
	Zone	2001	2002	2003	2004	2005	Total
0	Not identified	2	25	79	60	91	257
1	North Island	28	32	26	11	23	120
2	Nelson-Marlborough	7	14	6	5	10	42
3	Canterbury	4303	4171	4455	4832	5025	22786
4	West Coast	26	26	30	36	24	142
5	Otago	18	16	5	9	5	53
6	Southland	8	6	9	8	7	38
	Totals	4392	4290	4610	4961	5185	23438

It would seem there are very small numbers of women who are from other domiciles represented in this data although it is unclear what effect the group of women whose domicile is not recorded would have on the overall numbers. More attention to this data collection would be beneficial to provide clarification of this.

Lead Maternity Carers

The following graph demonstrates the proportion of all LMCs who are providing care to the women delivered in our Maternity Unit annually. One hundred and fifty five LMCs cared for 98% of women delivering at CWH during 2005. The largest groups are LMCs looking after between 1 and 20 women per year and 21 and 40 women per year, which represents a range of 0 to 4 women birthing per month on average. Only a very small number of LMCs look after more than 100 women a year (8 women or more per month). Patients booked under CWH are those women being managed principally by the Christchurch Women’s Core Maternity Staff, while the Team Care Midwives have shared a number of often complex cases in combination with the Medical Obstetric Team.

Figure 3: Number of deliveries being managed per annum

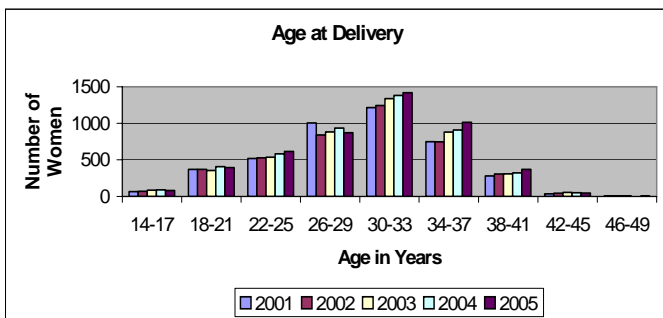


Maternal Age

The range of maternal age at delivery spans 30 years. There has been a marked increase in the number of women aged over 30 years giving birth at Christchurch Women's Hospital over the last 5 years. This trend is also seen in maternity data collected for all of New Zealand dating back over the past ten years. The number of New Zealand women giving birth at age 30-34 years has doubled and the number at age greater than 35 years has tripled over the last 10 years. The implication of this is a higher incidence of antenatal and intra-partum complications such as maternal diabetes, hypertension, multiple pregnancy and intra-uterine growth restriction. This trend would be expected to lead to an increased complexity of maternal antenatal presentations and the associated elective early delivery which can often be seen with these conditions and consequently increased rates of induction of labour and caesarean section.

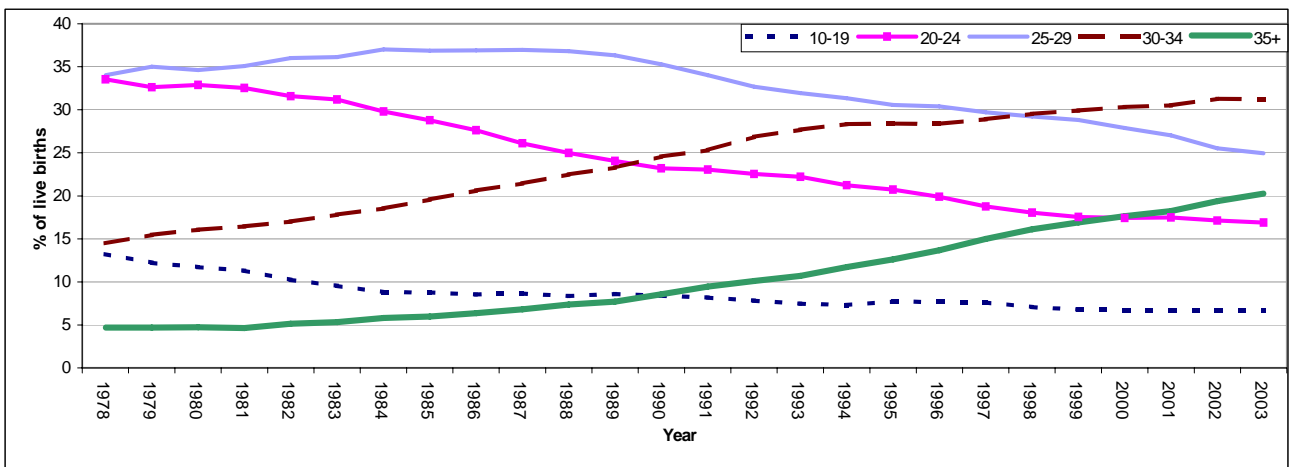
Christchurch Women's Hospital Data

Figure 4: Age at Delivery



Data collected by New Zealand Health Information Services 2003

Figure 5: Trend of live births recorded for all New Zealand and stratified by maternal age in years



There is a substantial increase in pregnancy occurring in women who are over 30 years of age dating back more than twenty years. At the same time the number of births occurring to women under thirty is decreasing.

These factors have major implications for the level of antenatal and intra-partum care needed to ensure optimal outcomes for mother and baby. It is conceivable this factor will have some bearing on how much of a reduction in rates of obstetric intervention we are likely to be able to achieve.

Ethnicity of Women Birthing at CWH

The way ethnicity has been captured has altered over the past five years of this annual report.

This in some ways prevents an accurate assessment of what trends might be occurring over this time.

Table 9: Ethnicity of women birthing at Christchurch Women's Hospital

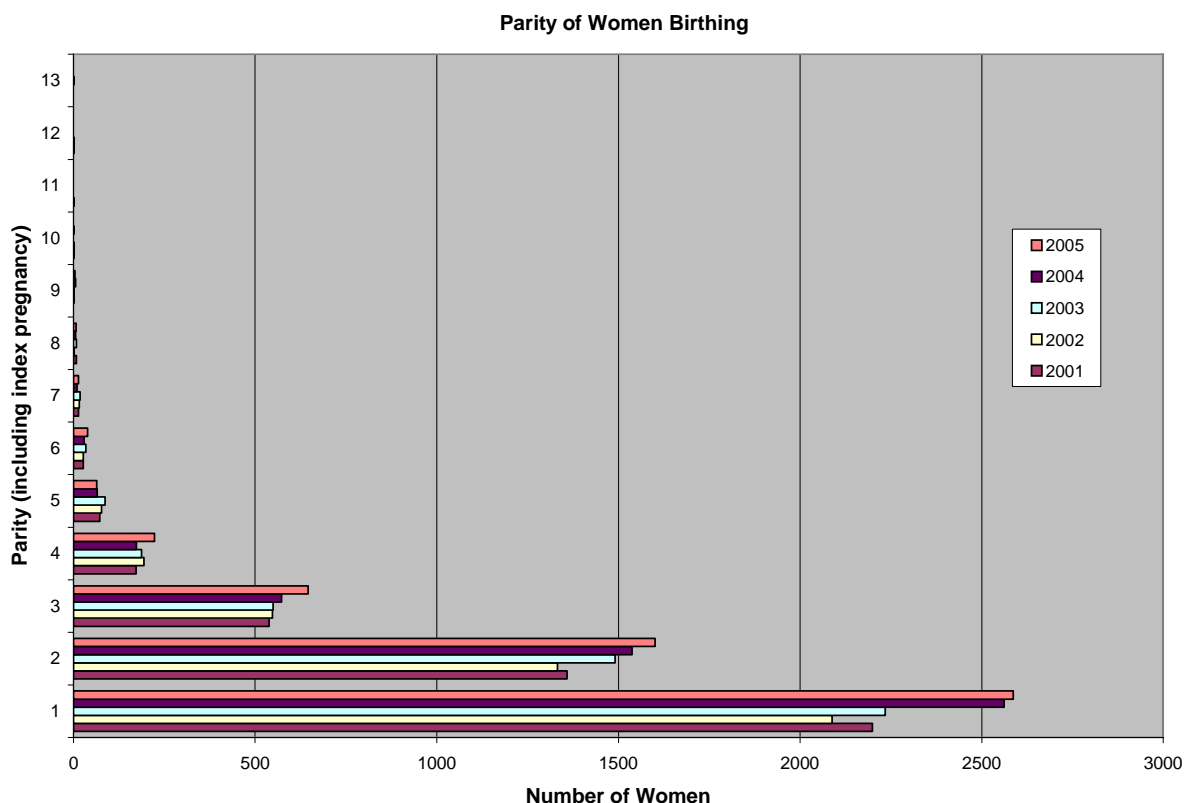
Previous Categories	2001	2002	2003	New Categories	2004	2005
African	24	8	22	African	30	35
Asian not further defined	19	18	157	Asian	317	280
Chinese	59	68	32			
Cook Island Maori	7	5	4			
NZ European/Pakeha	3298	3211	1524	European	3773	3865
European not further stated	53	28	2002			
Fijian	7	5	4			
Indian	19	18	13			
Latin American/Hispanic	6	1	7	Latin Am /Hispanic	12	7
Middle Eastern	9	17	18	Middle Eastern	25	37
Niuean	2	0	1			
Not stated	69	59	36	Not stated	20	31
NZ Maori	278	274	325	Maori	356	373
Other	11	14	6	Other	0	21
Other Asian	61	69	55			
Other European	197	231	166			
Other Pacific Island (not listed)	5	9	4			
Pacific Island not defined	5	3	68	Pacific Islander	137	158
Samoan	74	80	52			
South East Asian	22	18	13			
Tokelauan	1	0	1			
Tongan	13	13	13			
Total	4239	4149	4433	Total	4670	4807

For the years preceding 2005 the data was collected in much broader categories and is less easy to compare. Even over those years however, it can be seen the majority of women birthing at CWH are of European descent. They comprise 80.4% of the delivering population in 2005. The next most common groups are Maori, Asian and Pacific Island and they represent the following proportions of our birthing population 7.8%, 5.8% and 3.3% respectively.

Parity

Over the past five years around 50% of women birthing at Christchurch Women's Hospital were nulliparous. These women are more likely to experience complications in labour and to require operative delivery. Although in 2005 it appears the number of women who were nulliparous was higher than ever, because of the overall increase in delivery numbers they represent a similar proportion to previous years at 50.3% of all birthing women at CWH.

Figure 6: Parity of women birthing



For these 5 years approximately 80% of the birthing population are having their first or second baby.

Operative Vaginal Delivery

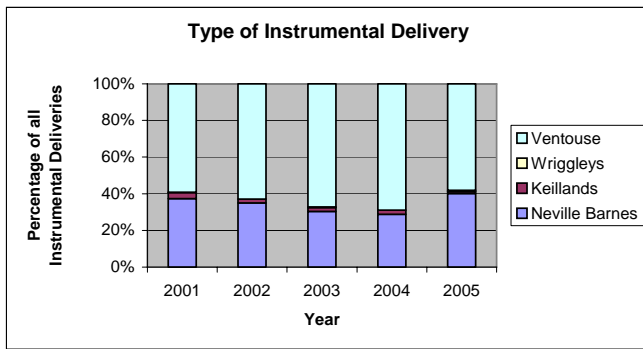
Data collection for operative vaginal delivery is dependent upon the obstetrician completing a delivery record sheet and that data being transferred to the appropriate database. Unfortunately the data is relatively incomplete from this source this year as a result of poor compliance with completion of this recording method. Consequently the following data has been retrieved from an alternative source and you will note that some figures are slightly different to those represented in previous reports.

Table 10: Operative vaginal deliveries

Year	Neville Barnes	Keillands	Wriggleys	Ventouse	Totals	% of all births
2001	308	27	2	488	825	19.5%
2002	218	13	0	391	622	15.0%
2003	185	13	2	410	610	13.8%
2004	227	18	0	543	788	16.9%
2005	295	8	5	426	734	15.3%
Totals	1233	79	9	2258	3579	

The operative vaginal delivery rate for all women who deliver at CWH was 15.3% for 2005. The rate has ranged between 13.8% and 19.5% over the past five years for our hospital. This rate is high compared to the national rate, which sits around 10% for the country. Several other large metropolitan obstetric units appear to have rates similar to this and so to some extent these rates may simply reflect the tertiary hospital patient profile. Very few women experience an instrumental birth outside of CWH now, as a result of the government led focus of primary maternity services on normal labour and birth and the subsequent reduction of available General Practitioner and Obstetrician Medical Staff to support these women in the private obstetric service.

Figure 7: Type of instrumental delivery

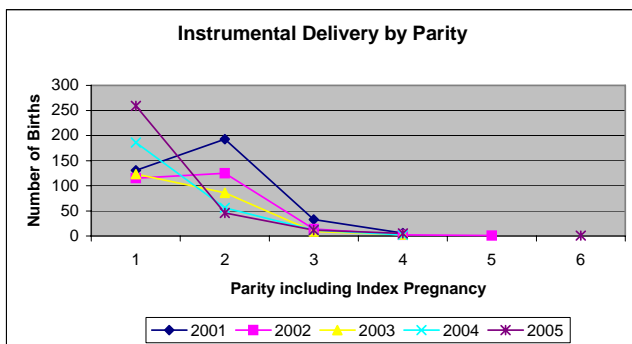


Ventouse continues to be the most commonly deployed method and Keillands rotational births are becoming less common. This may be a result of the both the withdrawal from obstetric services of senior Obstetricians who were confident in their use and the introduction of the Kiwi cup which has not been captured separately from the ventouse numbers this year.

Our epidural on demand policy at CWH may be having an impact on the numbers of operative vaginal births, which are performed each year. The 2006 Cochrane meta-analysis of epidural for analgesia in labour identifies an increased risk of instrumental vaginal delivery (relative risk 1.38, 95% confidence interval 1.24-1.53).

The epidural rate for all women was 34.6% for 2005. Women who undergo induction of labour as a group are far more likely to request epidural analgesia than those who labour spontaneously, therefore our attempts at addressing the rate of IOL may also have some indirect effect on the operative vaginal delivery numbers.

Figure 8: Instrumental delivery by parity



It is apparent instrumental vaginal delivery is much less common for multiparous women. This is likely to represent the fact that the onset of labour is more likely to be spontaneous. In addition, we know from historical data that the mechanism of labour is usually more efficient and the expectation of both the women and her care givers are that as she has previously achieved a vaginal birth (true for most of these women), that is to be expected again. The message we send women about the likelihood of achieving a normal birth cannot be underrated. It is essential that we recognise the choices we make available to the patient both antenatally and in labour do have an effect on the possibility of a normal birth. It is appropriate to discuss options thoroughly and empower the patient with the likely consequences of those options.

Reference

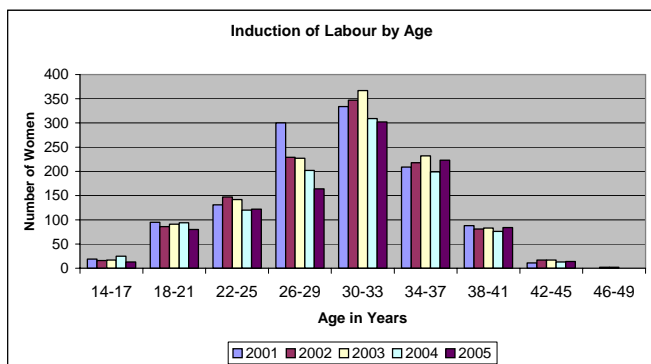
Epidural versus non-epidural or no analgesia in labour. Anim-Somuah et al. Cochrane Database of Systematic Reviews.2, 2006-08-15

Induction of Labour

Table 11: Induction of labour by year

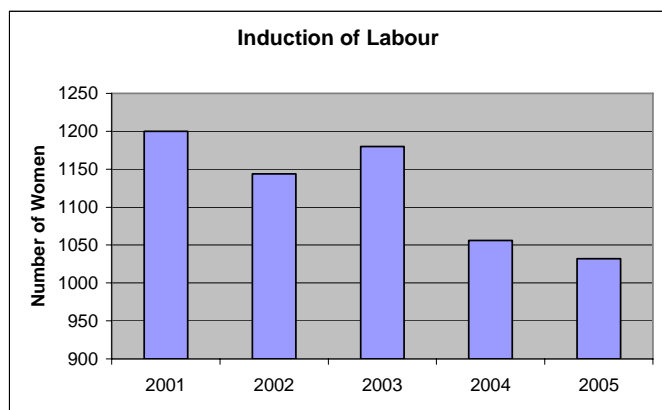
Year	Total Number of Women Undergoing IOL	Total Number of Births at CWH	IOL Rate Per Year
2000	1185	4108	28.9%
2001	1282	4241	30.0%
2002	1153	4149	27.8%
2003	1180	4433	26.6%
2004	1045	4670	22.4%
2005	1032	4807	21.5%

Figure 9: Induction of labour by age



We continue to see a reduction in the numbers of women who have their labour induced. The reducing trend was already evident in the two years leading up to the formation of a working group to monitor and prioritise induction of labour for this unit. However there has been a marked and sustained reduction in the rate since that group became active. The advantages of managing this intervention more appropriately are a potential reduction in the epidural rate, which typically sits around 60% for this group and consequent instrumental delivery. For nulliparous women adherence to strict guidelines about indications for and availability of induction of labour for post mature pregnancy may provide the opportunity for spontaneous labour and a subsequently better chance of a normal vaginal delivery.

Figure 10: Induction of labour



Age of all Women Delivering at CWH in 2005

Not surprisingly the peak of age of women undergoing IOL mirrors that for all women delivering in our unit.

Figure 11: Age at delivery

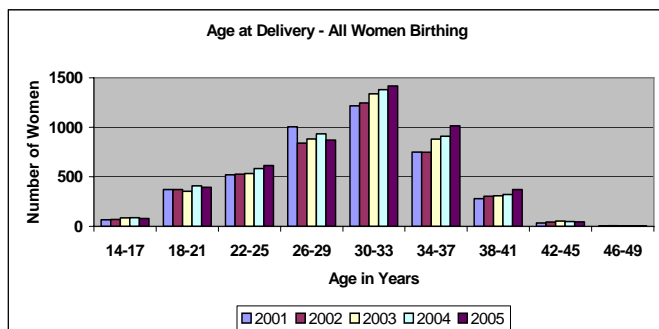


Figure 12: Induction of labour by age



Table 12: Comparison of age at IOL and age for all births in 2005

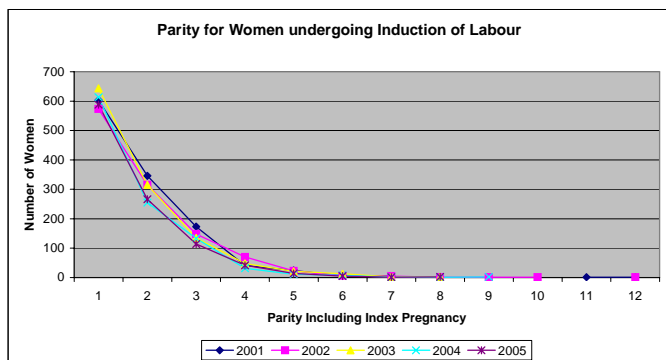
Years	14-17	18-21	22-25	26-29	30-33	34-37	38-41	42-45	46-49	Total
IOL in 2005	13	80	122	164	302	223	84	14	0	1002
	1.3%	8.0%	12.2%	16.4%	30.1%	22.3%	8.4%	1.4%	-	
Births in 2005	79	394	614	870	1417	1014	371	45	3	4807
	1.6%	8.2%	12.8%	18.1%	29.5%	21.1%	7.7%	0.9%	0.1%	

It is apparent there is a subtle preponderance of IOLs in women over 30 years of age compared to the general population as might be expected with their increased prevalence of both obstetric and medical complications.

(Note: the original figure for IOLs for 2005 was 1032. There are a total of 30 women not captured in the following data as it is obtained from a differing source. With the limited staffing resources currently available to produce this report it is not possible to reanalyse this clinical group. Despite this omission the data is still clinically relevant given that it represents 97.2% of the recorded IOLs).

Parity and IOL

Figure 13: Parity for women undergoing induction of labour



Nulliparous women represent the largest proportion both of women delivering in our unit and undergoing IOL. They unfortunately have the highest rate of interventions quite possibly as a result of this initial one as well. This will include epidural for labour, dysfunctional labour leading to the initiation of syntocinon augmentation and both forms of operative delivery.

Table 13: Women undergoing IOL in 2005

	Vaginal Delivery	Vaginal Delivery as a Percentage of all IOL Women	Emergency Caesarean Section	CS as a Percentage of all IOL Women	Total Number of Women
Nulliparous Women	325	57.8%	237	42.2%	562
Multiparous Women	378	85.9%	62	14.1%	440
Total	703	70.2%	299	29.8%	1002

As in previous years the rate of emergency caesarean section for primigravida women undergoing IOL is over 40%. By comparison the decision for IOL for a multiparous woman has less far reaching consequences as they have a far better chance of still delivering vaginally (85.9%).

Induction of Labour by Gestational Age

Certainly the largest number of women experiencing IOL are in the 40-43 week. This is understandable given that many of the complications in pregnancy which are indications for IOL, typically occur in the last few weeks of pregnancy such as proteinuric hypertension, intra-uterine growth restriction and maternal diabetes deterioration. Additionally IOL for post date inductions will obviously fall into this category and would represent one of the two most common indications for induction of labour.

Induction of Labour after Estimated Date of Delivery

There is an apparent shift of the concentration of IOL in 2005 away from the first week following EDD to the second week. Despite this, the caesarean section rate is actually slightly lower than for IOL in 2004. More detailed data than is currently collected would be required to identify what the cause for this apparent shift might be however, it is tempting to speculate that the lower numbers of IOLs for 2005 overall may simply reflect a later recourse to IOL for an uncomplicated pregnancy which is post EDD. As the actual numbers of deliveries within the unit have increased and the age of the women birthing here continue to rise it is unlikely there would be a reduction in other indications for IOL for the same year.

Table 14: Induction of labour after estimated date of delivery

Year	40 weeks		41 weeks		42 weeks		43 weeks		Total IOLs
	No.	% of all IOL	No.	% of all IOL	No.	% of all IOL	No.	% of all IOL	
2001	260	20.3	368	28.7	24	1.9	1	0.07	1282
2002	236	20.5	394	34.2	22	1.9			1153
2003	239	20.3	398	33.7	32	2.7			1180
2004	216	20.7	358	34.3	40	3.8	2	0.01	1045
2005	156	15.6	393	39.2	55	5.5	2	0.2	1002

Unfortunately this year we have not been able to accurately deduce the individual indications for IOL from our data system as has been achieved in previous years. It is reasonable to surmise however that IOL for exceeding the EDD would still be likely to be the number one indication for IOL above any of the other eight recognised indications as has been the case for the past four years. The induction of labour working group have made recommendations about delaying induction for women past their estimated date of delivery until EDD + 8 or more days.

The critical factor to appropriate prioritisation of IOL is the reliability of the gestational age estimate. Ideally the due date of delivery should be estimated by accurate dates, but where these differ by more than seven days from the scan date (before 20 weeks) the EDD used should be that generated from the earliest scan. Subsequent or late scans are not as accurate for predicating EDD. If dates are uncertain a policy of watch and wait with fetal monitoring may be more appropriate than a potential unnecessary induction of labour.

I include a copy of the principle recommendations from the NICE guidelines, which are generated in conjunction with the Royal College of Obstetricians and Gynaecologists. These are the guidelines we have been promoting within our unit over the past two years.

Practice Recommendations

- An ultrasound to confirm gestation should be offered before 20 weeks of gestation, as this reduces the need for induction for perceived post-term pregnancy
- Women with uncomplicated pregnancies should be offered induction of labour beyond 41 weeks
- From 42 weeks, women who decline induction of labour should be offered increased antenatal monitoring consisting of a twice weekly CTG and amniotic fluid assessment.

Other common indications for induction of labour at CWH include proteinuric hypertension (previously known as pre-eclampsia) and diabetes. With regard to hypertension in pregnancy it is important to note that it is not even listed as an indication for IOL with the NICE guidelines. It is important to make the distinction between hypertension with or without proteinuria as hypertension alone is not an indication for early delivery. A brief snapshot of our local performance from an audit conducted in 2005 is included below.

Induction of Labour for Hypertension

Audit of CWH June and July Induction's 2005

Total of 25 women induced with hypertension given as their primary indication.

Method of audit: Retrospective notes review of all 25.

Background

IOL working group looking at ways to reduce unnecessary interventions and their consequent complications. Last year prolonged pregnancy was highlighted and that focus resulted in a steady decline in IOL numbers. This year the two other significant groups of women are those induced for hypertension or its related sequelae and "other".

Intention of audit

To compare the documented features internationally considered to be a requirement for IOL for hypertensive disease in pregnancy with what is actually occurring. This audit precedes the presentation of a clinical guideline for IOL in the setting of hypertension at CWH, which will incorporate the following:

- To consider IOL for women with hypertensive disease (or atypical disease)
- BP > 160/100 on two occasions at greater than 38 weeks or prior to 38 weeks despite treatment.

Plus at least one of the following:

- Urine output < 400ml in 24 hours
- Creatinine rising
- Platelets falling
- Liver function tests rising
- CTG non reassuring
- IUGR/oligohydramnios
- Reversed umbilical artery resistance
- Proteinuria > 300mg/24 hr.

Number of women undergoing IOL for June and July = 67 + 80 = 147.

Number of women for which hypertension recorded as the indication for IOL = 25.

17% of IOL during this period identified hypertension as the reason for this intervention.

Despite the IOL form citing hypertension or pre-eclampsia as the indication for IOL the following was evident on notes review:

Table 15: Number of women for which hypertension recorded as the indication for IOL

Feature	No. women	%
Severe hypertension with biochemical/haematological changes *	0	0%
Mild hypertension only	1	4%
Hypertension plus proteinuria	4	16%
Hypertension + proteinuria + other blood abnormalities	7	28%
Hypertension + proteinuria + fetal wellbeing in doubt	2	8%
Proteinuria only	3	12%
None of the above (1 gestational diabetic)	8	32%
Total	25	100%

**Women admitted directly to birthing suite with severe/fulminating hypertension may not have an IOL form completed and therefore will not appear on the delivery suite booking screen. This is of little relevance however given that there is no question about the appropriateness of IOL in that setting and this is not the group of women we are intending to review.*

Gestational age of Women Induced where Hypertension was Recorded as the Primary Reason for IOL

Table 16: Gestational age of women induced where hypertension was recorded as the primary reason for IOL

Gestational age	37+1 to 38 weeks	38+1 to 39 weeks	39+1 to 40 weeks	40+1 to 41 weeks
No. women	4	7	8	6

Table 17: Delivery outcome

Mode	Number of Women	As percentage of total
Normal Vaginal	10	40%
Ventouse	3	12%
Emergency Caesarean	12	48%
Total	25	100%

Conclusion

As the delivery outcomes after IOL reflect a much higher level of anaesthetic and medical input throughout the delivery process, with regard to use of epidural and a caesarean section rate for this group of 48%, it is appropriate to establish clear guidelines for IOL in the setting of women with hypertensive disease in pregnancy. This is the current focus of the IOL working group.

The third consistently most common indication for IOL has been IOL for reasons defined as other. This will be the next indicator the group will focus on.

Clinical Indicators for Induction of Labour

The concept of clinical indicators to allow comparison between units and even comparison within units was derived from the Women's Hospitals of Australasia work, which has been ongoing. This year we can report two years of comparative data for the indicator – "other". The category encompasses any reason given for IOL excluding those reasons that are currently identified as appropriate indications for IOL.

It might thus be said in an ideal world there should never be any women who are induced within this category, but in real life there are specific clinical scenarios where it can be appropriate to do so. The interesting factor is the ongoing debate around what is the correct proportion for women in this category as compared to the others, which have been identified.

The categories are listed below:

- Diabetes
- Hypertensive disorders
- Prelabour rupture of membranes
- Intrauterine growth restriction
- Isoimmunisation
- Concern re-fetal wellbeing
- Chorioamnionitis
- Fetal demise
- Prolonged pregnancy.

You will note precipitate labour and suspected fetal macrosomia are not included as at the present time there is insufficient evidence to support IOL for either of these indications. It is therefore appropriate to question the value of ultrasound scanning to estimate fetal size at term when it has an inherent risk of being inaccurate and there is currently little indication the measurements should have any bearing on the plan around mode or timing of birth. Re-education in an attempt to avoid unnecessary maternal anxiety around the findings of such scans is an ongoing process.

Induction of Labour for "Other"

Clinical Indicator 1.1

Numerator: The number of women undergoing IOL for indications other than those refined by RANZCOG (excluding augmentation).

Denominator The total number of women undergoing IOL for any reason (excluding augmentation).

Provisional Threshold Mean 36.7% (threshold 31.6-42.1%).

Table 18: Induction of labour for "other"

	2001		2002		2003		2004		2005	
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
No. Women Induced for Other	373	29	282	24	293	25	195	18.7	205	20.5
Total No. Women Induced	1287		1153		1180		1045		1002	

Clinical Indicator 1.2

Numerator The number of women undergoing IOL for indications other than those refined by RANZCOG (excluding augmentation).

Denominator The total number of women delivering (including augmentation).

Table 19: IOL for indications other (excluding augmentation) and total number of women delivering (including augmentation)

	2001		2002		2003		2004		2005	
	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
No. Women Induced for Other	373	9	282	7	293	6.6	195	4.2	205	4.3
Total No. Women Delivering	4241		4149		4433		4670		4807	

These figures are encouraging for our unit and are further evidence of the positive effect a dedicated group of multidisciplinary staff members can have in bringing about change with in a maternity unit. The positive contribution of both Obstetricians and Lead Maternity Carers involved with all aspects of induction of labour has brought about this change in intervention rate and in addition reprioritised our work load on birthing suite to the women who most need assistance.

Delivery Outcome for Women Undergoing Induction of Labour

For all women who are induced the likelihood of achieving some form of vaginal delivery is approximately 70%. The rate of vaginal delivery versus caesarean section has very slightly improved between 2004 and 2005. This was coincident with the Obstetric Consultants becoming resident on the Birthing Suite during the day Monday to Friday. It is possible the increased level of expertise may have facilitated more appropriate management of women undergoing IOL and additionally a higher likelihood of an operative vaginal delivery which without the availability of an experienced practitioner may have resulted in a further increase in the caesarean section numbers for this group of women.

It is important to emphasise that induction of labour is not a normal obstetric event and the level of maternal and fetal monitoring is significantly increased for these women. The NICE guidelines for fetal monitoring list IOL as an indication for continuous fetal monitoring in labour.

There is the potential for women undergoing induction to be disadvantaged by other more acute cases taking precedence over their own IOL proceeding and as a result some induction processes can take several days. Where possible, senior medical staff need to be directly involved in the consultation with women and their LMC around those prolonged or complicated cases where decisions to delay or continue or abandon IOL are being made. While the Consultant presence on Birthing Suite assists with this during the day, the daily evening and morning rounds they perform also serve to optimise this process.

Figure 14: Delivery outcome following induction of labour

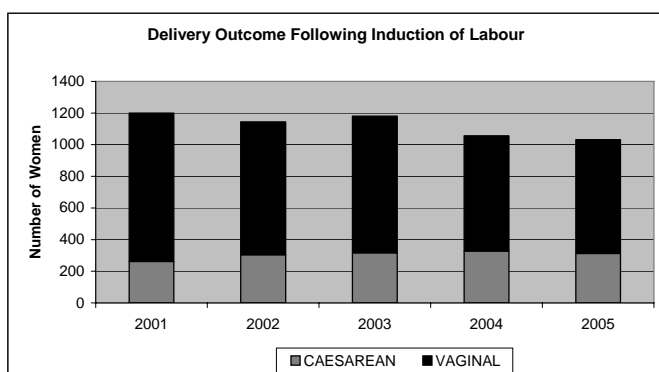


Table 20: Mode of delivery after induction of labour by year

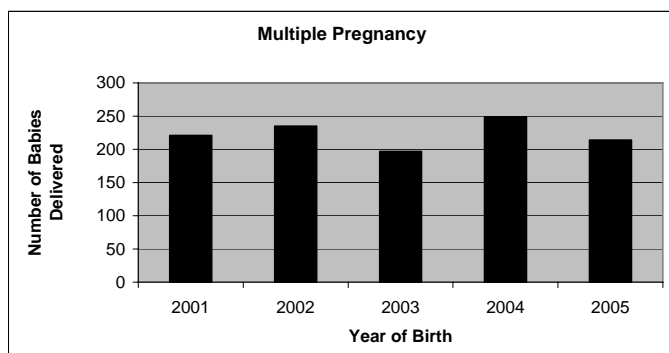
	Delivery Category				Grand Total
	CAESAREAN	Percentage CS	VAGINAL	Percentage Vag	
2001	262	21.8%	938	78.2%	1200
2002	305	26.7%	839	73.3%	1144
2003	317	26.9%	863	73.1%	1180
2004	328	31.1%	728	68.9%	1056
2005	313	30.3%	719	69.7%	1032
Grand Total	1525		4087		5612

The overall emergency caesarean section rate of 18.4% includes women undergoing IOL, but the rate for the IOL group when considered in isolation appears to be somewhat higher at 30.3%. This is an important finding and reinforces the appropriateness of the IOL working group's intention to restrict access to IOL to those women who demonstrate an appropriate clinical indication.

Multiple Pregnancy

The number of birthing women with multiple pregnancies is relatively stable over the years. This is a group of women who require considerable antenatal surveillance and delivery planning. In general they have serial antenatal scans and multiple clinic appointments, are more likely to have an early or elective delivery and commonly involve both anaesthetic and neonatal consultation at the time of birth.

Figure 15: Multiple pregnancy



Proportion of Multiple Births Compared to all Deliveries by Year

The proportion of women with a multiple pregnancy who birth at Christchurch Women's Hospital is similar to the remainder of New Zealand's tertiary maternity units.

Table 21: Proportion of multiple births compared to all deliveries by year

Year	Number of Multiple Births	Total Number of Births	Multiples as a Percentage of Total Births at CWH
2001	221	4241	5.2%
2002	235	4149	5.7%
2003	197	4433	4.4%
2004	249	4670	5.3%
2005	214	4807	4.5%

Number of Women Delivering

It is encouraging to see the numbers of high order multiples (= triplets) has reduced over the years and this may have been contributed to by the Fertility Centre's adoption of international recommendations with regard to In Vitro Fertilisation Couples and number of embryos transferred. It is acknowledged however the most recent sets of triplets were spontaneously conceived.

Table 22: Numbers of twins and triplets

	Twins	Triplets
2001	109	1
2002	113	3
2003	94	3
2004	123	1
2005	107	

Delivery Outcome for Multiple Pregnancies

Mode of delivery for women with a multiple pregnancy is complicated by the inherent increased risk, which includes prematurity, impaired fetal growth and malpresentation. Additionally women carrying a multiple pregnancy are more at risk of diabetes and hypertensive disorders as a result of the increased gestational burden. For this reason the caesarean section rate is understandably higher (around 50%) than for singleton pregnancies. It is encouraging to note however, that despite the affect of the findings of the Term Breech Trial in regard to vaginal breech delivery many women are still able to safely deliver their twin babies vaginally. This will include women whose second twin has a non-cephalic presentation antenatally. There is no current research evidence to support elective caesarean section for twins where the second fetus has a breech presentation.

Table 23: Delivery outcome for multiple pregnancies

Year	Caesarean Section	Vaginal delivery	Total
2001	59	51	110
2002	59	57	116
2003	54	43	97
2004	63	61	124
2005	56	51	107

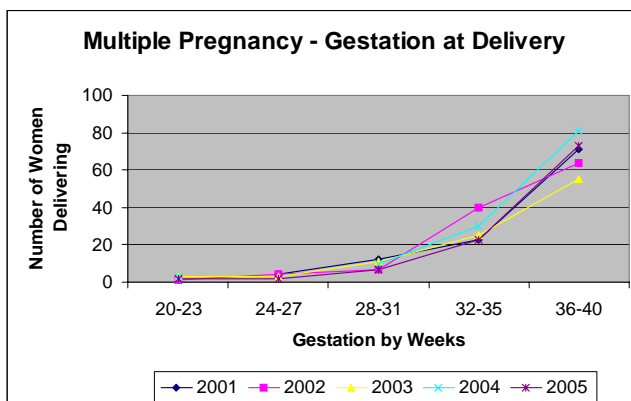
Reference

Cochrane Database of Systematic Reviews, Vol 3, 2006

Gestational Age at Delivery for Multiple Pregnancy

Premature birth is one of the most significant risks for multiple pregnancy. This is due to complications arising from chorionicity and fetal growth impairment. The following graph indicates there has been little change in preterm births rates for multiple pregnancies over the past 5 years at CWH. International data shows approximately 70% of multiple pregnancies deliver between 35 and 37 weeks. This is also true for our local population. There has been some interest in whether elective induction prior to 40 weeks is wise given the potential for increased perinatal risk for a twin pregnancy compared to a singleton pregnancy at this gestation. Currently there is no conclusive data to suggest delivery before 40 weeks gestation.

Figure 16: Multiple pregnancy - gestation at delivery



Post Partum Haemorrhage

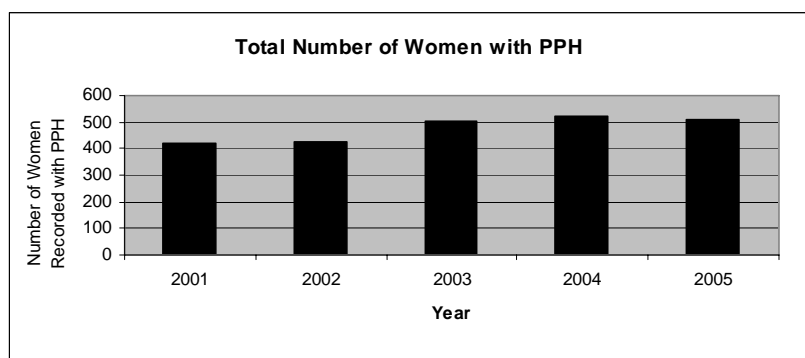
The data represented includes only women experiencing primary postpartum haemorrhage (recorded as women who have lost in excess of 500ml within 24 hours of birth) as our current data systems are not capable of reliably identifying women readmitted to the Gynaecology Service with secondary postpartum haemorrhage.

Table 24: Women experiencing PPH

Year	Number of Women With PPH	Number of Women Delivering Total	Percentage of Women Who Experience PPH
2001	423	4241	10.0%
2002	428	4149	10.3%
2003	503	4433	11.4%
2004	525	4670	11.3%
2005	510	4807	10.6%

The post partum haemorrhage rate for women who deliver at or are transferred to CWH in 2005 was 10.6%. This rate has been reasonably stable for the five years of this report.

Figure 17: Number of women with PPH



Severity of Post Partum Haemorrhage

In fact the loss of 500mls of blood at the time of delivery is not a good measure of potential patient compromise given that most women are able to adapt to this level of loss with no significant sequelae. It is common for women undergoing caesarean delivery to lose this volume of blood as a result of the procedure and one would not list this as a complication at this volume. A more useful clinical estimate would be to look specifically at the women who lose in excess of 1000mls at the time of delivery or within the ensuing 24 hours. According to our figures this would comprise 168 women with a clinically significant loss. This constitutes 3.5% of the women birthing at CWH. It is worth noting however that any women with a significant PPH at one of the primary units would be transferred to CWH postpartum. They would not be captured in our birthing figures but should also be reflected in the denominator and the rate therefore reduces to more like 3.2%.

The hospital policy of recommending active management of the third stage of labour with an oxytocic being given is not routinely followed, as there are large numbers of birthing practitioners with varying views and practice around this issue. The current Maternity Notice does not address the utility of hospital guidelines for LMCs.

Unfortunately risk assessment in the antenatal period does not effectively predict those women who will have PPH. The World Health Organisation however has provided an international recommendation in regard to management of third stage, active management of the third stage should be practiced on all women in labour since it reduces the incidence of PPH due to uterine atony (this is also supported by the evidence based Cochrane review system).

It would be interesting to audit third stage management in this hospital. Currently this is difficult to achieve as there is no official record of whether this is followed apart from documentation of an ecobolic having been given in the body of the patient's clinical notes. It would be helpful to have third stage management recorded in CareSys.

Table 25: Number of women experiencing blood loss (mls)

Year	Number of Women Experiencing Blood Loss (mls)													Total
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500-2999	3000-3499	3500-3999	4000-4499	5000-5499	6000-6499	8000-8499	9500-10000	
2001	93	221	86	19	4									423
2002	55	246	97	19	8		2			1				428
2003	67	284	94	37	10	2	5		2		1		1	503
2004	61	292	115	33	21		1	1		1				525
2005	58	284	94	44	13	5	5	3	2	1		1		510
Total	334	1327	486	152	56	7	13	4	4	3	1	1	1	2389

Post Partum Haemorrhage and Plurality

Risk of PPH is increased by over-distension of the uterus. Multiple pregnancy is therefore one of several risk factors for PPH and despite our routine utilisation of active measures to control for bleeding this factor plus the increased rate of caesarean section in this group renders these pregnancies much higher risk than singletons for this complication.

Table 26: PPH and plurality

Year	Singleton Pregnancies With PPH	Number of Singleton Pregnancies	% of All Singletons	Multiple Pregnancies With PPH	Number of Multiple Pregnancies	% of All Multiples	Total
2001	410	4131	9.9%	13	110	11.8%	423
2002	405	4033	10.0%	23	116	19.8%	428
2003	488	4336	11.3%	15	97	15.5%	503
2004	504	4546	11.1%	21	124	16.9%	525
2005	487	4700	10.4%	23	107	21.5%	510

The risk of PPH does certainly seem to increase with gravidity. We do well currently as practitioners in identifying grand multipara as being at high risk for PPH and managing those women accordingly with active management of third stage and often prophylactic syntocinon infusions. It is possible there may be room for improvement with our management of women having their second and third babies and this may well tie in with the use of oxytocics in women who are otherwise deemed to be low risk by their LMC. This would be an area for further study in an attempt to continue with our pursuit of optimal outcomes for women.

Figure 18: Post partum haemorrhage by parity

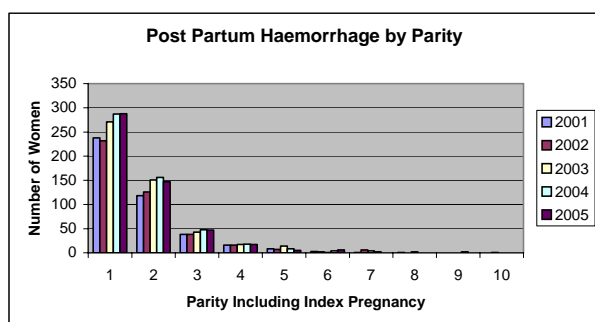
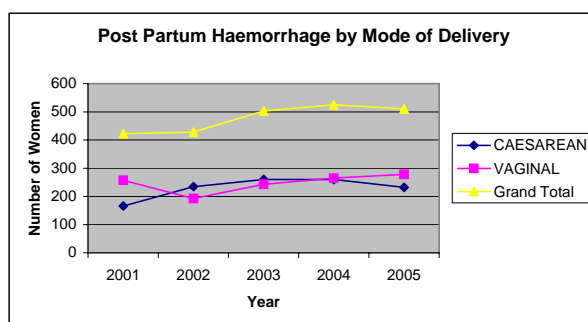


Figure 19: Post partum haemorrhage by mode of delivery

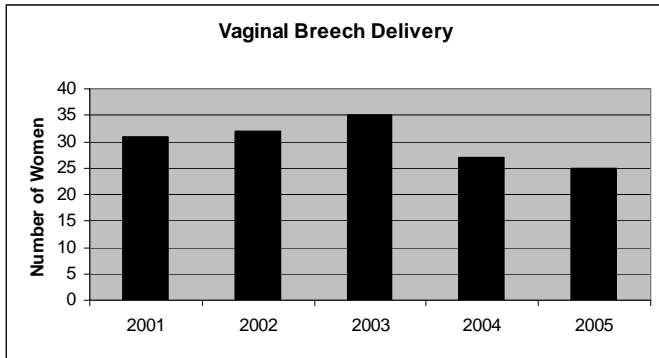


When considering post partum haemorrhage it is well known that caesarean delivery will be associated with a higher rate of post partum haemorrhage than vaginal delivery. The risk of PPH for women who are delivered by caesarean section was 17.3% compared to 7.2% for women delivered vaginally. We are utilising more prophylactic oxytocic infusions in women after caesarean section and appear to be seeing an apparent reduction in the incidence of PPH in this group. However, the upward trend for women following vaginal delivery once again raises questions about utilisation of prophylactic techniques for women after both vaginal operative and normal vaginal birth.

Breech Presentation at Term

Around 4% of women are reported to encounter breech presentation at term. In our unit the rate has varied between 3.4 and 4.4% since 2001. Only a very small proportion deliver vaginally as a result of the effect of the Term Breech Trial information being disclosed. The 2 year data from this trial suggests the fetal outcomes are comparable and perhaps now that this is reported we may begin to see an increase in particularly multiparous women attempting vaginal delivery of their breech babies.

Figure 20: Breech presentation at term

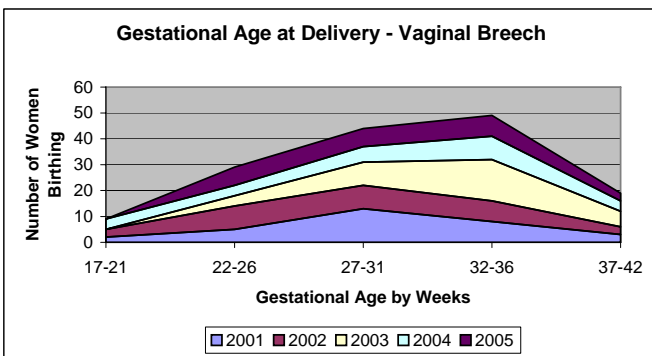


Gestational Age at Delivery

Women who labour prematurely are more likely to experience vaginal breech birth. This is more common for the extremely premature infant where caesarean section may not necessarily be less traumatic. Additionally, in this scenario it may not confer increased likelihood of survival.

The largest number of babies delivered vaginally following a breech presentation would be that of second twins. At the present time evidence is being gathered internationally to answer the question of which way these babies would be more safely and appropriately delivered.

Figure 21: Gestational age at delivery - vaginal breech



Concluding Remarks

Informed consent around decisions including induction of labour, recommendations for caesarean section, interventions such as active management of labour and the third stage and epidural utilisation is crucial to the process of labour and birth and optimising outcomes for women and their babies.

Dr Dianne Poad - Clinical Director Obstetrics

CAESAREAN SECTION REPORT

Information about caesarean sections (CS) performed at Christchurch Women's Hospital (CWH) is entered from the Women's and Children's Health Division (WCHD) Caesarean Section Operation Report (form 8934) into the WCHD Caesarean Section Database. Other sources of CDHB data are the CareSys system, Crystal program and Ministry of Health (MoH) (1). Unless otherwise stated, data is from the CS database.

The following information is reported;

- CS rates for CWH and Canterbury District Health Board (CDHB) region
- Vaginal birth after CS (VBAC) rates and repeat CS.
- Data, relating to the 3 most common reasons for primary CS (2);
 - failure to progress
 - presumed fetal distress
 - breech presentation
- Data on maternal request for primary elective CS.

CWH Caesarean Section Rates

The total caesarean section rate (CSR) at CWH in 2005 was 28.2%. This is essentially unchanged since 2002. However, the CSR suddenly increased from around 23% in the triennium 1999 – 2001 to around 28 % in the period 2002 – 2005. (Table 1.) A similar sudden increase is noted in the NWH Report from around 25% in 1998 to 2000 to 29% from 2002. The reasons for this are unclear.

Unfortunately the MoH has not reported data on the NZ tertiary institutions CSR separately in its latest report (1) so benchmarking with all NZ tertiary hospitals is not possible. However, National Women's Hospital (NWH) reports a total CSR for 2005 of 31.6% (3). Victoria in New South Wales, Australia, which has a similar number of births to New Zealand, reports a total public tertiary hospital CSR for the state of 30.5% for 2004 (4).

Please note that all comparisons with other tertiary hospitals are crude rates with no adjustment for case mix (age, parity, ethnicity, maternal disease, and antenatal complications). Work is in progress on data extraction for a 'standard primipara' in order to make more useful comparisons with other centres in future reports. A standard primipara is defined as a mother aged 20-34 years with no significant maternal or antenatal disease who gave birth to a singleton, non small for gestational age (SGA) baby in cephalic presentation at term (see also (3) (4)). Currently primiparas with significant antenatal and maternal disease complications can not be reliably excluded from this group using our current systems. Current best estimate of CSR for standard primipara is 25.9% overall and 19% for those who labour spontaneously.

Table 1: CWH total CS rate 1999 –2005

Year	Total number of CS	Total number of Births	Total CS Rate (%)
1999	872	3765	23.2
2000	877	4108	21.3
2001	1031	4241	24.3
2002	1174	4149	28.3
2003	1240	4433	28.0
2004	1331	4670	28.5
2005	1356	4807	28.2

Mode of Caesarean Section

Planned elective CS now comprises 8.6% of all births at CWH (Table 2). The elective CSR has gradually increased over time. This trend was apparent even before a CS database classification change was made in 2004. A new mode of CS was included on the CS data form in 2004 'Emergency CS prior to planned Elective CS'. The aim was to group women planned for elective CS, who went into labour prior to their scheduled date, with the 'elective CS' group rather than the 'emergency in labour' group. The MoH, National Women's Hospital and the Victorian Perinatal Data Collection Unit (VPDCU) also place these women in the elective CS group. Elective CSR at NWH was 11.6% for 2005 (3), and 15% for public Tertiary hospitals in Victoria in 2004 (4)

Table 2: Elective CS as a percentage of total births by year

Year	Elective CS (n)	Total Births (n)	% of total births
2000	234	4108	5.7
2001	283	4241	6.7
2002	323	4149	7.8
2003	363	4433	8.2
2004	418	4670	9.0
2005	411	4807	8.6

Data is from CareSys apart from 2004, 2005 which is from the CS database.

In the total CS group, one third of CS were elective and two thirds were emergency CS. Approximately 5% of CS that would previously have been classified as 'emergencies in labour' were found to actually be planned for elective CS (Table 3.)

Table 3: Mode of CS for 2005, as percentages of total CS and total births

Mode	CS type (n)	% of CS (1356)	% of births (4807)
Planned elective	342	25.2	7.1
Em CS prior to planned elective	69	5.1	1.5
Total elective CS	411	30.3	8.6
Emergency in labour	848	62.5	17.6
Emergency not in labour	97	7.2	2.0
Total emergency CS	945	69.7	19.6
Totals by parity	1356	100	28.2

The CSR for nulliparous women was 30.9% of which the majority were emergency CS in labour (79%). NWH reports a nulliparous CSR of 33.4% for 2005 (3) (Table 4.)

Table 4: Mode of CS for 2005, as percentages of nulliparous CS and all nulliparous births

Mode	CS type (n)	% of nullip CS (748)	% of nullip births (2421)
Planned elective	90	12.0	3.7
Em CS prior to planned elective	16	2.2	0.7
Total elective CS	106	14.2	4.4
Emergency in labour	591	79.0	24.4
Emergency not in labour	51	6.8	2.1
Total emergency CS	642	85.8	26.5
Total	748	100	30.9

The CSR for multiparous women was 25.5% of which half were emergency CS and half elective CS. NWH reports a multiparous CSR of 29.8% (3) (Table 5.)

Table 5: Mode of CS for 2005, as percentages of multiparous CS and all multiparous births

Mode	CS type (n)	% of multip CS (608)	% of multip births (2385)
Planned elective	252	41.5	10.5
Em CS prior to planned elective	53	8.7	2.2
Total elective CS	305	50.2	12.8
Emergency in labour	257	42.3	10.8
Emergency not in labour	46	7.6	1.9
Total emergency CS	303	49.8	12.7
Total	608	100	25.5

Ethnicity Data

This is the second year that CSR have been reported by ethnic group. The majority of women who gave birth at CWH in 2005 were NZ European and the CSR of 28.2% for this group is the same as for the total CWH birthing population. The most recent MoH report presents regional and national ethnicity data. This ACR reports CSR ethnicity data for a tertiary hospital, so it is expected that CSR for each group will be higher than regional data. The national CSR for NZ European women was 26.2% in 2003 (1).

Maori women make up 7.8% of the birthing population at CWH in 2005, compared to approx 20% of the total NZ birthing population. The CSR of 24.1% for Maori women at CWH was lower than the total CWH population and NZ European women, but higher than the CSR (15.5%) for all Maori women in NZ in 2003 (1). The CSR for all Polynesian women in NZ was 18.4% in 2003 (1). Therefore, the CSR of 26.7% for Polynesian women at CWH in 2004 is higher than the national average (Table 6).

Table 6: CS rates by ethnic group

	NZ European	Maori	Polynesian	Asian	Other
2004					
CS (n)	956	99	44		232
Births (n)	3355	364	137		814
CSR %	28.5%	27.1%	32.1%		28.5%
2005					
CS (n)	1096	92	42	89	37
Births (n)	3865	373	158	280	131
CSR %	28.4%	24.6%	26.7%	31.7%	28.2%

CDHB Regional Caesarean Section Rates

The MoH produces statistics by DHB region, however their latest report only captures 83% of all hospital births. Also there is at least a two year time lag to publication. Therefore the W&CH Clinical Support Team collates statistics for total CDHB regional births (Table 7). There has been difficulty obtaining accurate numbers of homebirths.

Table 7: Number of births per birthing centre in CDHB region 2002-2005

Birthing Unit	2002	2003	2004	2005
CWH	4149	4433	4670	4807
Kaikoura	8	9	0	0
St George's Hosp.	607	615	612	540
Burwood	195	212	220	206
Darfield	9	3	4	2
Akaroa	3	3	5	3
Waikari	1	4	9	0
Lincoln	91	86	97	89
Rangiora	50	90	90	83
Ashburton	120	137	140	162
Homebirths	120	96	108*	108**
Total	5353	5688	5955	6000

* No data for 2004 available therefore average figure for the preceding 2 years used in the 2004 report.

** MoH reports that 1.8 % of all births are non-hospital (1). Therefore assuming that the hospitals total of 5892 represents 98.2 % of CDHB region births a further 108 births are calculated to be home births in 2005.

CS in the CDHB region are performed at CWH and St Georges Hospital Inc (Table 8).

Table 8: CDHB regional numbers of CS 2002-2005

Year/ mode of CS	CWH	St Georges	Total
2002			
Emergency	851	0	851
Elective	323	345	668
Total	1174	345	1519
2003			
Emergency	877	0	877
Elective	363	352	715
Total	1240	352	1592
2004			
Emergency	853	0	853
Elective	387	327	714
Total	1331	327	1658
2005			
Emergency	945	0	945
Elective	412	317	729
Total	1357	317	1674

The NZ national CSR continues to slowly climb reaching 23.1% in 2003 (1). The regional CSR for Canterbury DHB has remained static since 2002 at around 28% (Table 9.) It will be interesting to see if the gap between these two rates continues to close over time.

The CDHB Regional Elective CSR was 3-4% above the NZ national elective CSR for 2000–2003. This difference accounts for most of the difference between the CDHB total CSR and the national total CSR. (Tables 9 & 10).

Table 9: CDHB regional total CSR 2000-2005

Year	Total Number of CS	Total Number of births	CDHB Total CS Rate (%)	NZ National CSR
2000	1176*	5335*	22.0*	20.8*
2001	1384*	5446*	25.4*	22.1*
2002	1519	5353	28.4	22.7*
2003	1592	5688	28.0	23.1*
2004	1658	5955	27.8	
2005	1674	6000	27.9	

*MoH figures

Table 10: CDHB regional elective CSR 2000-2005

Year	Number of Elective CS	Total Number of Births	Total Elective CS Rate (%)	NZ National Elective CSR
2000	540*	5335*	10.2*	7.2*
2001	642*	5446*	11.8*	7.9*
2002	668	5353	12.5	8.4*
2003	715	5688	12.6	8.8*
2004	714	5955	12.0	
2005	729	6000	12.2	

*MoH figures

Vaginal Birth after Caesarean Section (VBAC)

There are several ways of calculating VBAC rates. The following VBAC rate is for women who have had one previous birth that was a CS. The WHA group (5) and NWH report this form of VBAC rate. It is also part of Australian Council on Healthcare Standards (ACHS) /RANZCOG clinical indicator set (2.1) (6) and reported in the three preceding WHD Annual Clinical Reports (Table 11). The CWH rate for this clinical indicator was 27.0% in 2005; NWH was 24.9% in 2005 and WHA was 23.6% in 2002/2003. This rate has decreased by 10% from 2002 to 2005 at CWH.

Table 11: VBAC rate for women whose only previous birth was a CS

Year	Successful VBAC	Repeat CS	Total previous CS=1	VBAC rate %
2002	86*	145	231	37.1
2003	102*	378	480	21.3
2004	110*	222	332	33.3
2005	96*	259	355	27.0

(*CareSys data)

It is notable that 43.4% of women whose only previous birth was a CS did not attempt VBAC. At NWH in 2005 44.7% of these women did not attempt VBAC (3). At CWH in 2005 a total of 201 women attempted VBAC of which 96 were successful, which equates to 47.8% success rate for women who laboured (Table 12). This is somewhat lower than the 61% that were successful in 2002 at CWH and the rates of 60 to 80% quoted in the literature. The successful attempted VBAC rate for NWH in 2005 was 44.9% (3) and for the VPDCU in 2004 was 55% (4).

Table 12: Mode of birth for women whose only previous birth was a CS

Mode of Birth	2004		2005	
	Number	%	Number	%
Elective CS	97	29.2	114	32.1
Emerg. CS prior to planned Elective CS	32	9.6	24	6.8
Emerg. CS not in labour	8	2.4	16	4.5
Total scheduled CS	137	41.2	154	43.4
Emerg. CS in labour	85	25.6	105	29.6
VBAC	110	33.3	96	27.3
Total	332	100	355	100

An alternative way to look at VBAC rates is the total VBAC rate. This is the number of successful VBACs in women with one or more previous CS, as a percentage of the total number of women giving birth with one or more previous CS. The total VBAC rate for 2005 was 26.4% (Table 13). This also compares with a total VBAC rate of 34.5% in the C&CDHB (7) report in 2002.

Table 13: Total VBAC rate

Year	VBAC (n)	Total previous CS (n)	Total VBAC rate (%)
2003	176*	480	36.7
2004	193*	585	33.0
2005	140*	547	26.4

* *CareSys data*

Repeat Caesarean Section

There were 407 repeat CS at CWH in 2005. This comprised 29.5% of all CS and 8.4% of all births. Approximately three quarters of women having a repeat CS had only one previous CS (312). However only 228 women had 'previous CS' listed as the primary indication for their repeat CS, suggesting that there may have been an additional factor for many repeat CS.

Primary Caesarean Section

The three main indications for primary (first) CS are failure to progress in labour, fetal distress in labour and breech presentation (Table 14).

Table 14: Main indications for primary CS as a percentage of all primary CS and all births

Primary Indication	Total Primary CS (n)	CSR as a % of primary CS (949)	CSR as a % of births (4807)
Failure to progress in labour	389	30.5%	8.1
Fetal distress in labour	167	17.5 %	3.5
Breech	154	14.0%	3.2
Other	239	25.2%	5.0
Total	949	100%	19.8

Failure to Progress in Labour

There were 389 primary CS performed for the main indication of failure to progress in labour. This constitutes 30.5% of all first time CS and just over half (55.1%) of all first time CS that are emergencies in labour. CS for failure to progress can be divided into those that fail to establish in labour (dilation 3cm or less) and those that fail to progress in labour (>3cm) (Tables 15 and 16). These are clinical indicators 3.1 and 3.2 (6).

Table 15: Primary CSR for failure to progress in labour with cervical dilation < or=3cm

Year	CS for FTP < or = 3 cm (n)	Total Primary Emergency CS (n)	% of all primary Emergency CSCI 3.1
2002	52	716	7.3
2003	67	795	8.4
2004	49	761	6.4
2005	66	706*	9.3

* CS mode 'Emergency in labour' only.

Table 16: Primary CS for failure to progress in labour with cervical dilation more than 3 cm

Year	CS for FTP > 3 cm	Total Primary Emergency CS	CSR % of all primary CS CI 3.2
2002	256	716	35.8
2003	270	795	33.9
2004	313	761	41.1
2005	323	706	45.8

The majority (341/406 =84%) of women having CS for 'failure to progress' were nulliparous women. Of these 69.5% had syntocinon augmentation which is an improvement since 2004 (Table 17).

Table 17: Syntocinon use prior to CS for failure to progress in nulliparous women.

Year	Yes	No	Blank	Total numbers	Synto use %
2004	198	114	17	329	60.2
2005	237	100	4	341	69.5

Presumed Fetal Distress

The total number of CS performed for the primary indication of fetal distress/non reassuring CTG was in labour 197, of these 167 were first time CS. Primary CS for fetal distress in labour accounts for 3.5% of all births at CWH. (Clinical Indicator 4.1 (6)). Fetal distress in labour is the indication for 17.6% of primary CS. (Clinical Indicator 4.2 (6)) (Table 18).

Table 18: Primary CS for presumed fetal distress in labour as a percentage of all births

Year	CS for FD in labour (n)	Total Primary CS (n)	CS for FD as % all primary CS CI 4.2	Total births (n)	CS for FD as % all births CI 4.1
2002	172	819	21	4149	4.1
2003	171	936	18.2	4433	3.8
2004	234	938	24.9	4670	5.0
2005	167	949	17.6	4807	3.5

From 2004, a field for fetal blood sampling (FBS) prior to CS was added to the CS form. The NSCA Report (2) identifies use of FBS for presumed fetal distress as an auditable standard. There is a very low rate of sampling noted (Table 19), which may be due to the difficulty of obtaining an adequate sample to obtain both a pH and a base excess level. The pH alone may not accurately affect the degree of metabolic acidosis. A lactate machine has been purchased for the Birthing Suite with the hope of improving the accuracy and technical ease of sampling. This requires a smaller blood sample and may give a better reflection of metabolic acidosis/anaerobic metabolism than pH alone.

Table 19: Fetal blood sampling prior to CS for presumed fetal distress in labour

Year	Yes	No	Blank	Total numbers	performed FBS %
2004	28	164	42	234	12
2005	10	154	32	197	5.1

Cord pH was recorded for 160 /197= 81.2% of CS for fetal distress in labour. A little over half of babies had acidosis confirmed on arterial cord pH (pH <7.25) (Table 20).

Table 20: Cord pH of babies delivered by CS for fetal distress/non reassuring CTG

Cord pH	number	%
<7.0	10	6.25
7.0 – 7.09	8	5.0
7.1 – 7.19	35	21.9
7.2-7.249	37	23.2
>7.25	70	43.8
Total recorded	160	100

Cord pH does not always accurately reflect the degree of metabolic acidosis. Base excess is a useful adjunct as a measure of metabolic acidosis and is reported as a negative number. Base excess was recorded for 191 /197= 97% of CS for fetal distress in labour. Around one fifth of babies who had BE analysis had an abnormal base excess (BE < - 0.6) and only 6.3% had a significantly abnormal BE (< = -12) (Table 21).

Table 21: Base excess of babies delivered by CS for fetal distress/non reassuring CTG

Base Excess	number	%
< or = -12	12	6.3
< or = -6	36	18.9
> -6	149	74.8
Total recorded	191	100

Breech Presentation

There were 169 CS performed for the primary indication of breech presentation, of which 154 were primary CS. There were 26 vaginal breech deliveries in 2005. The vast majority (93.9%) of term breech presentations were delivered by CS (Table 22).

Table 22: Breech delivery by gestation

Gestation	Vaginal Breech (n)	CS Breech (n)	Total by gestation	CSR by gestation %
21-24	7	0	7	N/A
25-36	10	30	40	75
37+	9	139	148	93.9
Totals	26	169	195	86.6

External Cephalic Version is a safe and effective practice that decreases the need for CS for term breech presentation (Cochrane review). To audit the practice of ECV at CWH two new fields were added in 2004 to the CS form consisting of 'External Cephalic Version (ECV) offered' and 'ECV attempted'. ECV was offered to 28.7% of women with an elective CS for term breech presentation (no previous CS). ECV was attempted for 21.5% of women with an elective CS for a term breech presentation (no previous CS) (Tables 23 & 24).

The CS database does not capture the women who have had a successful ECV and deliver vaginally. CareSys does not have a code for ECV either, therefore at present it is not possible to calculate an ECV success rate from the databases to determine how many CS have been avoided by successful ECV. An ECV clinic was set up at CWH in 2006. Its practice is being audited.

Table 23: ECV offered prior to primary CS for breech presentation > or = 37 weeks

Year	Yes	No	Blank	Total numbers	Offered ECV %
2004	27	46	17	90	30.0
2005	45	73	21	139	28.7

Table 24: ECV attempted prior to primary CS for breech presentation > or = 37 weeks

Year	Yes	No	Blank	Total numbers	Attempted ECV %
2004	23	52	15	90	25.6
2005	30	88	21	139	21.5

It is commendable that nearly all babies delivered by caesarean section for fetal distress had cord pHs performed. Cord pHs are a useful audit tool, which highlights that in many CS performed for fetal distress the babies were not acidotic.

Maternal Request for CS

Information about maternal request is difficult to collect. A new field was introduced onto the CS form on 1st January 2005. This aims to gauge the degree to which maternal request has affected the decision for CS. There was a change in wording during the year. All those coded as maternal request 'yes' or 'major' are regarded as CS for maternal request in 2005. In the 2004 report only those recorded as CS for maternal request as being the primary indication were regarded as CS for maternal request. The largest group of women were the 74 women who had one previous CS recorded as maternal request being a major factor in decision. Excluding these women to look at women who were requesting primary CS the absolute numbers are small at 37 (Table 25).

Table 25: Numbers of women requesting CS by parity and previous CS status.

Year /Parity	No prev CS (n)	Previous CS (n)	Totals by Parity (n)
2004			
Primipara	10	0	10
Multipara	11	23	34
Total by Prev CS Status	21	23	44
2005			
Primipara	22	0	22
Multipara	15	74	89
Total by Prev CS Status	37	74	111

Primary CS for predominantly maternal request comprised 0.8% of all births and 5.4% of all primary CS at CWH in 2005. The requests are split approx 50:50 between primips and multips (Table 26). This compares with a rate of 7% of all CS and 1.9% of all births in England and Wales in 2001 for this indication (2).

Table 26: Maternal request - a major factor in decision making for primary CS

Year Parity	Maternal request (n)	Total CS by parity group (n)	Primary CSR for MR as a % of CS	Total births by parity group	Primary CS for MR as a % of births
2004					
Nullipara	10	743	1.4	2442	0.2
Multipara	11	588	1.9	2228	0.3
Total	21	1331	3.3	4670	0.5
2005					
Nullipara	22	748	2.9	2421	0.5
Multipara	15	608	2.5	2386	0.3
Total	37	1356	5.4	4807	0.8

Summary of Key Points

- There has been no increase in the total CSR at CWH in the last 4 reported years. It remains around 28% despite an increase in maternal age and morbidity
- There has been no increase in the total or elective CSRs in the CDHB region over the last 4 reported years
- The majority of CS for multiparous women are elective repeat CS
- The majority of primary (first) CS are performed for failure to progress, fetal distress and breech presentation
- Less than 1% of births are primary CS for maternal request
- Comparisons with other units CSRs are tentative, as it is difficult to account for case mix. Development of the standard primipara concept may help with benchmarking.

In accordance with the NICE (8) and NZGG Guidelines on CS (9) potential strategies to impact the 4 main reasons for CS and decrease the CS rate at CWH are;

- To encourage VBAC
- To increase the use of syntocinon in nulliparous women for failure to progress
- To increase the use of Fetal Blood Sampling in cases of suspected fetal distress
- To offer External Cephalic Version for breech presentations at term.

The following is a summary of progress at CWH to date;

- The VBAC rate has fallen from 37% in 2002 to 27% in 2005 for women whose only previous birth was a CS. Successful attempted VBAC rate has fallen from 60% in 2002 to 47.8% in 2005. This is an area that needs further audit
- There has been an increase in the number of nulliparous women receiving syntocinon prior to CS for failure to progress since 2004
- There is a very low rate of fetal blood sampling prior to CS for fetal distress/non reassuring CTG. A lactate machine has been purchased for the Birthing Suite in response
- There appears to be a low rate of ECV offered to women with breech presentation prior to CS. A dedicated ECV clinic has been set up in response.

References

- (1) Report on Maternity 2000 & 2001. Report on Maternity 2002. Report on Maternity 2003. Ministry of Health, NZ Health Information Service
- (2) Thomas J, Pararjothy S. RCOG Clinical Effectiveness Support Unit. National Sentinel Caesarean Section Audit Report London; RCOG Press; 2001
- (3) National Women's Hospital Annual Clinical Report 2005. ISSN 1175-667
- (4) Births in Victoria 2003-2004. Perinatal Data Collection Unit. Public Health. Victoria 2005. Riley, Davey, King 2005
- (5) Benchmarking in Obstetrics 1997 – 2001, Women's Hospitals Australasia (WHA) October 2002. Buist & Cahill. Benchmarking in Obstetrics 2000–2003, Women's Hospitals Australasia (WHA) October 2004 Buist & Cahill
- (6) Obstetrics and Gynaecology Indicators in Australian Council on Healthcare Standards Clinical Indicator Users Handbook 2004 Version 5 (RANZCOG)
- (7) Capital & Coast District Health Board, Maternity Report 1997-2002
- (8) National Institute of Clinical Excellence, Clinical Guideline 13; Caesarean Section; NHS, London, April 2004
- (9) Safe and Effective Alternatives to Caesarean Section. NZ Guidelines Group 2003. Part 1: Care of Women with Breech Presentation, Part 2: Care of Women with Previous Caesarean birth.

Dr Sharron Bolitho - Consultant Obstetrician and Gynaecologist

FETAL MEDICINE REPORT

The number of cases and visits to the Fetal Medicine Unit has increased steadily since opening in February 2004. Total visit numbers by month are shown in Figure 1. The Viewpoint database was introduced into Fetal Medicine end of May 2004 and so for the purposes of this report, two series of figures are presented.

First, a list of the 2005 statistics. Second, as all outcomes were not available at the time of analysis for 2005 cases, an 18 month review is presented from when the database commenced i.e. June 2004 to November 2005 inclusive. This represents a detailed analysis of all cases presenting and their outcomes and an assessment of the accuracy of diagnoses made antenatally. It will be hoped to be able to present this data annually for future reports.

Figure 1: Number of visits to Fetal Medicine unit 2003-2005

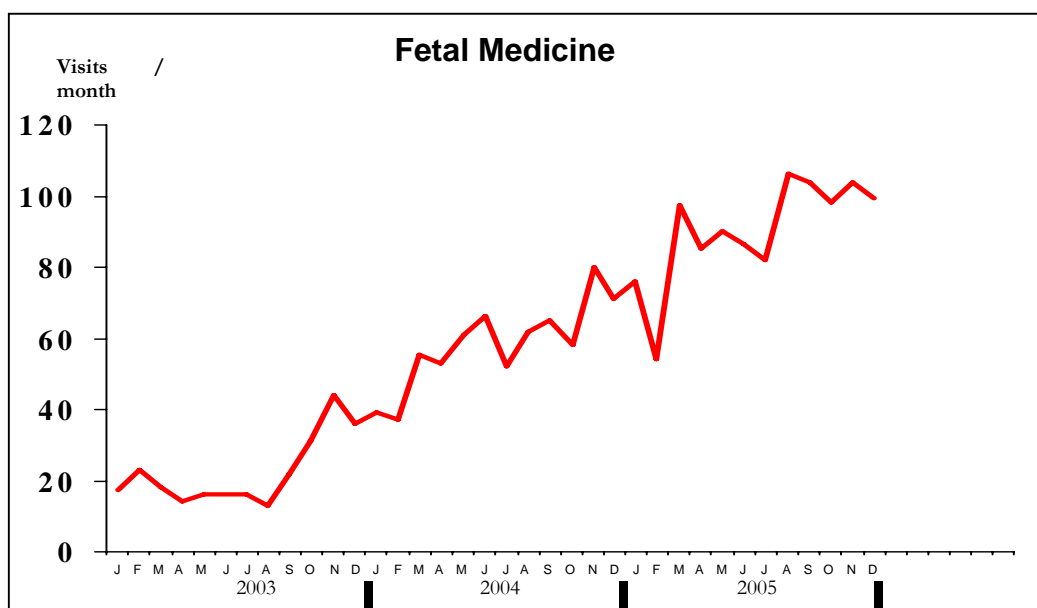


Table 1: Statistical breakdown of visits to Fetal Medicine 2005

Statistics	Number
Number Cases seen	697
Number Visits	890
Early Pregnancy Scans	207
Anomaly Scans	610
Detailed Cardiac Scans	78
Invasive Procedures	284
Amnio	138
CVS	107
Fetal Blood Sampling	4
Intrauterine Transfusion	16
Amniodrainage	7
Cyst drainage and other sampling	6
Shunt insertion	3
Embryo reduction/Fetocide	3

18 month Audit of all cases attending Fetal Medicine June 2004 to November 2005 inclusive

Introduction: The antenatal diagnosis of fetal abnormality has become a fundamental part of health care for pregnant women. The Fetal Medicine unit sees pregnant women with potential problems on an acute and semi-acute basis, utilising both non-invasive and invasive methods to establish if a fetal abnormality is present. If so, the aim is to provide suitable information and prognosis to parents regarding the likely outcome for those fetuses found to have abnormalities. It is important that the information supplied to the parents is as accurate as current technology and knowledge allows.

Aims: (1) To complete the patient record, from first admission to Fetal Medicine through to discharge of newborn. (2) To establish the accuracy of antenatal diagnosis by comparing those diagnoses made in Fetal Medicine with diagnoses made at, or shortly after birth until discharge, and to review the outcomes of those that terminated or were an intrauterine death. (3) To measure the admission rates to the Neonatal Intensive Care Unit (NICU) in relation to antenatal diagnosis.

Methods: All cases seen in the Fetal Medicine unit between 1st June 2004 and 30th November 2005 were collected and sorted according to diagnosis (681 cases). Relevant outcome data for those pregnancies was collected from various sources and matched to those cases. From these cases, the newborn's patient notes were examined to establish the accuracy of diagnosis made antenatally and outcome from terminations and intrauterine deaths were reviewed. For liveborn cases information was collected on any further health issues raised in those newborns before their discharge from Christchurch Women's Hospital, or other hospital in the South Island.

Results: There were 681 cases seen, 650 were singletons, 30 twins and 1 set of triplets. These cases accounted for 1219 visits to the Fetal Medicine Unit, and 400 procedures were performed including 209 amniocentesis and 149 chorionic villus samplings. 182 cases had a major abnormality, 48 cases had a minor abnormality, 63 were seen with raised nuchal translucency and 388 were found to have no abnormality antenatally in Fetal Medicine (Table 2). Many of those with no abnormality found, came for either elective karyotyping, followup after previous abnormality, or when a suspicious finding or reason for referral was not confirmed. Only 2 cases' outcome details were not available for outcome analysis, as delivery was outside of New Zealand. Therefore 679 (99.7%) cases were available for outcome analyses. Those cases with major abnormalities had higher rates of termination, neonatal death, intrauterine death and miscarriage (Table 2). A list of major abnormalities and their outcomes is seen in (Table 3), whereas minor cases are listed in (Table 4). A list of abnormal karyotypes and their outcome is found in (Table 5). Those cases diagnosed as "no abnormalities" had a live birth rate of 97%, compared with 59% for "major abnormalities".

With regard to accuracy of diagnosis, all 679 cases were studied, although separate information is listed for the 557 live births, with follow-up information taken from the baby notes until discharge. No additional findings of significance were found in the review of terminations or intrauterine deaths. In the liveborn cases, the number of cases in which the antenatal diagnosis was confirmed accounted for 93.5%, while those abnormalities that resolved prior to delivery accounted for a further 5.2% (Table 6). The majority of these were soft markers, but occasionally were a major abnormality such as abdominal cyst. Missed extra diagnoses which led to a significant clinical effect accounted for 1.3% of cases. A list of these is found in (Table 7). Furthermore, of the confirmed cases, there were some minor abnormalities that did not have a major effect on clinical outcome, such as small VSD, skin haemangiomas, tiny extra digit, and these accounted for 1.8% livebirths. In terms of admission rates to NICU, this was 52% for liveborns who had a major diagnosis and 9.2% for no diagnosis (Table 8). The numbers admitted with a major abnormality is likely to be higher as neonatal deaths were not accounted for in this analysis because whether babies were admitted to the Neonatal Unit or not when born outside of Christchurch, was not available. With regard to those "no abnormalities" cases admitted, events around birth (i.e. prematurity, meconium exposure) accounted for 75.9% of diagnoses on admission, with the remainder being mainly admitted for observation over the acute transitional newborn period.

Table 2: Classification of type of case seen in 18 months

	ALL cases	SINGLETON cases	Singleton Outcome					
			Live	TOP	NND	Miscarriage	IUD	Not Known
Major	182	174	102	49	10	3	9	
Minor	48	48	46	1	1	0	0	
Increased NT	63	59	52	6	0	1	0	
Normal	388	369	358	4	2	2	2	2
Total	681	650	558	60	13	6	11	2

Table 3: List of major singleton abnormalities and their outcomes

	Number	Live	TOP	NND	Miscarriage	IUD	Not Known
CNS							
Anencephaly	4		4				
Holoprosencephaly	2	1	1				
Ventriculomegaly	6	3	3				
Face							
Cleft Lip	5	5					
Cleft lip and Palate	3	3					
Micrognathia	1	1					
Neck							
Cystic Hygroma	8		6			2	
Cystic swelling/mass	2	2					
Cervical Teratoma	1		1				
Hydrops Fetalis	7	2	3	2			
Spine							
Myelomeningocele	8	2	6				
Hemivertebra	1	1					
Diastematomyelia	1	1					
sacrococcygeal teratoma	1	1					
Cardiac							
Atrioventricular Septal Defect	1	0	1				
Tetralogy of Fallot	3	2	1				
Transposition of the Great Arteries	1	1					
SVT	2	2					
Myocardial Hypertrophy	1	1					
Hypoplastic L heart	1		1				
Hypoplastic RV +TV +VSD	1	1					
Truncus arteriosus	2	1	1				
Tricuspid regurgitation	1	1					
Multiple echogenic foci + other defect	2	1	1				
Situs Inversus	1	1					
Bradycardia	1	1					
VSD	1	1					
Pericardial effusion + other	1		1				
Thoracic							
Pleural Effusion	2	2					
Diaphragmatic Hernia	3	0	2	1			
Thoracic cyst + upper abdo cyst	1	1					
Pulmonary sequestration	1	1					
CCAM	1	1					
Abdominal Wall							
Exomphalos	9	4	3	2			
Gastroschisis	7	7					
Bladder Exstrophy	1	0	1				
GIT							
Likely oesophageal atresia	1	1					
Abdominal cyst	1	1					

	Number	Live	TOP	NND	Miscarriage	IUD	Not Known
Dilated Bowel	1	1					
Hepatic AVM	1	1					
Renal							
renal agenesis - bilateral	2		1	1			
Cyst	1	1					
Hydronephrosis - Unilateral	1	1					
Hydronephrosis - bilateral	3	3					
Multicystic kidneys - unilateral	4	4					
Multicystic kidneys - bilateral	1	0	1				
Megacystis /urethral obst	2	0	1	1			
Bilat small dysplastic kid + anhy	1	1					
Skeletal							
Extremities: Talipes Bilateral	11	11					
Extremities: Abnormal arm (Amniotic Band or Raplasia)	2	2					
Skeletal Dysplasia - Likely Lethal	1			1			
Other							
Fetal Growth Restriction: Possible Fetal Abnormality	4	2	2				
Fetal Growth Restriction: Likely Placental insufficiency	3	2	1				
Likely chromosomal defect	9	3	4	1		1	
Anhydramnios: Unknown Cause	2			1		1	
Severe Polyhydramnios	2	2					
Cord Abnormality: Cord Cyst	2	2					
Amniotic membrane / band	1					1	
Fetal Anaemia	13	13					
Fetal Demise	7				3	4	
DNA testing abnormality	4		4				
Multiple Pregnancy	(Fetal numbers)						
Twin-twin Transfusion syndrome moderate	2	3		1			
Growth Restriction	3	6					
Cystic Hygroma	1	1				1	
Chromosomal abnormality	1				2		
Triplets complicated	1		1		2		

Table 4: List of minor singleton abnormalities and their outcome

	Number	Live	TOP	NND	Miscarriage	IUD	Not Known
Enlarged Cysterna Magna	1	1					
Choroid Plexus Cysts	12	12					
Premature Atrial Ectopics	3	3					
Echogenic Focus	8	8					
Echogenic Bowel	10	9	1				
Persistent R U vein	1	1					
Talipes Unilateral	3	3					
Fetal growth restriction: likely constitutional	2	2					
Oligohydramnios	3	3					
Cord Abnormality: 2 vessel cord	3	2		1			
Renal pelvic dilatation	2	2					

Table 5: List of abnormal karyotypes and their outcomes according to Fetal Medicine scan findings

Scan Diagnosis	Karyotype	Outcome
Cystic hygroma	45,X	Termination
Cystic Hygroma	45,X	Termination
No obvious signs of fetal anomaly were observed.	45,X/46,XX	Live Birth
No obvious signs of fetal anomaly were observed.	46,XX,del(1)(q11)[4]/46,XX[121]	Live Birth
Cardiac Defect: Tetralogy of Fallot + 22q deletion	46,XX,del(22)(q11.2q11.2)	Termination
No obvious signs of fetal anomaly were observed.	46,XXt(7;20)(p22;q13.1)	Live Birth
Diaphragmatic hernia	46,XY,r(15)(p11q2?5)	Termination
Increased nuchal translucency	46,XY[67]45,X0[3]	Live Birth
Likely chromosomal defect Trisomy 13	46,XY+13	Termination
Likely chromosomal defect Trisomy 18	46,XY+18	IUD
Cardiac Defect: Truncus Arteriosus	46,XY,Del(22)	Termination
Holoprosencephaly	46XX,7q-	Live Birth
Pericardial effusion + other abnormalities	47,XX+13	Live Birth
Cystic Hygroma	47,XX+18	Termination
Increased nuchal translucency + exomphalos	47,XX+18	Termination
Cystic hygroma: Trisomy 21	47,XX+21	IUD
Increased nuchal translucency + pleural effusions	47,XX+21	Termination
Ventriculomegaly	47,XX+21	Termination
increased nuchal translucency	47,XX+21	Termination
Tricuspid Regurgitation, multiple echogenic foci	47,XX+21	Termination
Fetal growth restriction: likely placental insufficiency	47,XX+mar/46,XX	Termination
No obvious signs of fetal anomaly were observed.	47,XXX	Live Birth
Likely chromosomal defect Trisomy 18	47,XY+18	IUD
Exomphalos, and Acrania	47,XY+18	Termination
Spinal defect: myelomeningocele, VSD + other	47,XY+18	Termination
Exomphalos; raised nuchal translucency	47,XY+18	Termination
Increased nuchal translucency	47,XY+20/46,XY	Termination
Increased nuchal translucency	47,XY+21	Live Birth
No obvious signs of fetal anomaly were observed.	47,XY+21	Termination
Cystic hygroma	47,XY+21	Termination
Echogenic Bowel, and pericardiac effusion	47,XY+21	Termination
Increased nuchal translucency	47,XY+21	Termination
Soft markers	47,XY+21	Termination
Cystic hygroma	47,XY+21	Termination
No obvious signs of fetal anomaly were observed	47,XY+21	Termination
Renal agenesis - bilateral. Likely chromosomal	47,XY+21	Termination
Increased nuchal translucency	47,XY+21	Termination
Hydrops + cystic hygroma	47,XY+der(9)t(3;9)mat	Termination
Exomphalos	47XXX,46XX,45X0	Live Birth
Fetal growth restriction: possible fetal abnormality	69,XXX	Termination
Likely chromosomal defect	UnbalTran+13	Termination

Table 6: Evaluation of antenatal and final diagnosis at discharge in liveborns, according to singleton, multiple and combined

	Number	%		Number	%
Singletons			Multiples		
Total Diagnoses Confirmed	518	93	Total Diagnoses Confirmed	53	98.1
Total Resolved by Birth	32	5.7	Total Resolved by Birth	0	0
Total Additional Major	7	1.3	Total Additional Major	1	1.9
Total Live Births	557	100	Total Live Births	54	100
<i>Total Additional Minor</i>	9		<i>Total Additional Minor*</i>	2	
Combined Total					
Total Diagnoses Confirmed	571	93.5			
Total Resolved by Birth	32	5.2	Total Live Births	611	100
Total Additional Major	8	1.3	<i>Total Additional Minor*</i>	11	

* *Additional minor not included in calculations as would not have made a clinically significant difference.*

Most cases which resolved were soft markers, but occasionally a major case (see Table 6) for a list of major and minor additional abnormalities in liveborns.

Table 7: Cases after birth in which additional abnormalities were found. Details of Fetal Medicine and Neonatal findings presented

Fetal Medicine	Diagnosis	Additional	Abnormalities found after delivery
Singletons		Major	
Minor	Choroid Plexus Cysts; Echogenic focus L ventricle		Craniosynostosis. Premature delivery, Surgery planned for 3 months.
Major	Growth behind dates, fluid reduced, normal dopplers.		Smith Lemli-Opitz syndrome. Baby died. 3rd trimester scan only at CWH.
Major	Micrognathia		Likely syndromic. Cleft palate, micrognathia confirmed.
Major	Spinal defect: hemivertebra		VATER syndrome. Hemivertebra, anal atresia, tracheo-oesophageal fistula.
Major	Talipes - bilateral		Pierre Robin sequence (cleft palate, micrognathia, microstomia), arthrogryposis.
Normal	No obvious signs of fetal anomaly were observed.		Duodenal web (Only AN scan at CWH was at time of CVS).
Normal	No obvious signs of fetal anomaly were observed.		Trisomy 21 - Hirschsprungs.
		Minor	
Major	Fetal growth restriction: possible fetal abnormality		Bilateral polydactyly, L extra digit tied off, R side will require plastic surgery.
Major	Gastroschisis		ASD confirmed (4-5mm). Gastroschisis repaired day 1
NT	Increased nuchal translucency		Bilateral hydroceles.
Normal	No obvious signs of fetal anomaly were observed.		Haemangioma on lip.
Normal	No obvious signs of fetal anomaly were observed.		Periauricular skin tag on L ear.
Normal	No obvious signs of fetal anomaly were observed.		Bilateral hydrocele.
Normal	Normal growth and fluid		Unilateral talipes.
Normal	Normal growth, fluid and dopplers(UARI)		Haemangioma on R buttock.
Normal	normal intrauterine pregnancy		Membranous VSD 3-4mm.
Twins			
Major	Small fetus, increased NT, no karyotyping	Major	Tetralogy of Fallot. Small VSD2-3mm with minimal overriding of aorta
Normal	MCMA twins	Minor	Small VSD not requiring closure at 6 months
Increased NT	Inc NT Twin 1	Minor	R positional talipes

* *Cleft palate, anal atresia, tracheoesophageal fistula, duodenal web, craniosynostosis, haemangioma, hydroceles unlikely to be diagnosed prenatally.*

Table 8: Admission to NICU (singletons and excluding neonatal deaths N=13 which many will have been admitted to NICU)

	All	Singleton	Singleton LB	NICU admission	%
Major	182	174	102	53	51.9
Minor	48	48	46	9	19.6
Increased NT	63	59	52	1	1.9
Normal	388	369	358	33	9.21
Total	681	650	558	96	

Conclusions

A high rate of follow-up was obtained with 99.7% of outcomes known. The higher rate of terminations, neonatal deaths, miscarriages and intrauterine deaths within the “major abnormalities” class is to be expected. The seemingly high number of abnormal cases is a reflection of the Fetal Medicine unit being a tertiary referral unit.

The accuracy of prenatal diagnosis in the Fetal Medicine Unit at the Christchurch Women’s Hospital is high, which is an extremely encouraging finding. The missed diagnosis rate of 1.3% can be explained by the limitations of diagnostic technology to diagnose additional abnormalities such as cleft palate, oesophageal atresia, and anal atresia.

Unfortunately the presence of these abnormalities often reflect a syndromic diagnosis which can have significant clinical implications, and so it is important that parents and staff are realistic that not all abnormalities will be detected by antenatal scanning and assessment.

Acknowledgements

This audit project has involved the work of many people. Primarily Peter Coghlan, a summer student funded by the Canterbury Medical Research Foundation. Furthermore, Jeannie Matthews, Ann Ross, and Barbra Pullar have contributed immensely, with following up outcomes, locating notes and adding outcome data into Viewpoint. I wish to thank all the Lead Maternity Carers (LMCs) who have returned the outcome forms on the women under their care. This is an essential ongoing component of the audit so that outcome data can be fed back to the users. Finally, this data represents the work of Rosemary Reid, myself, and a dedicated group of sonographers who assist in our Fetal Medicine lists, of whom I particularly wish to acknowledge Rex de Ryke, Julie Mitchell, and Liz Notley.

Professor Pippa Kyle - Consultant Obstetrician, Sub Specialist Maternal Fetal Medicine

DIABETES IN PREGNANCY REPORT

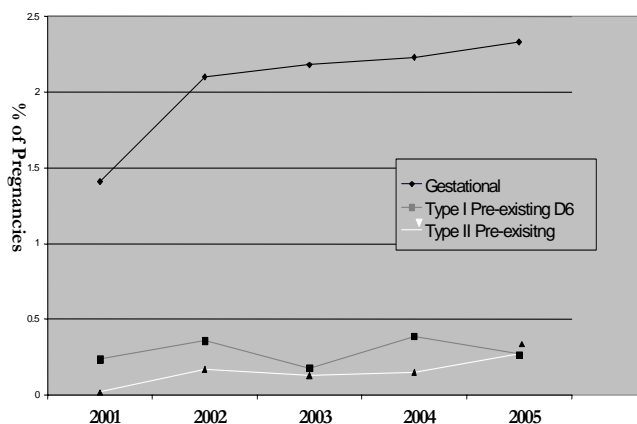
Pregnancy care for women with diabetes, either pre-existing or gestational, continues to be delivered in Christchurch Women's Hospital (CWH) by a multidisciplinary team comprising dietician, special interest midwife, physicians and obstetricians who liaise with Lead Maternity Carers providing midwifery care. With the introduction of a second high risk obstetric clinic, women are reviewed between two multidisciplinary antenatal clinics allowing for flexibility for the women and better opportunity for temporal review. During 2005 some of these women had their midwifery care provided by the CWH Team Care Midwives.

Incidence

One hundred and thirty eight women had a diagnosis of diabetes in pregnancy; either pre-existing Type 1 or 2 diabetes or gestational diabetes, representing 2.9% of our pregnant population. This proportion continues to be relatively low compared to some other centres around the country, most likely reflecting our local ethnic mix. There is however an over representation, as would be expected, of women from high risk ethnic groups with 29% of the women identifying as either Maori (8%), Pacific island (7%) or Asian (14%) versus 7.7%, 3.3% and 5.7% respectively of these groups in the delivering population. It may also be that some women with gestational diabetes are not being recognised, as uptake of screening is not universal.

The incidence of pre-existing Type 1 and 2 Diabetes and gestational diabetes cared for in the Christchurch Women's Hospital, diabetes in pregnancy service over time is shown in Figure 1. The apparent sharp rise between 2001 and 2002 may reflect a change in referral practice from private care. Of note the overall percentage incidence increase has been small over the last three years although the total number of women cared for continues to rise, and has increased nearly 100% from 2001 (71 to 138 women). Fifteen (11%) of the women were over 40 years of age with only two of these women having pre-existing Type 2 Diabetes.

Figure 1: Incidence of diabetes in pregnancy over the last 5 years



Obstetric Course

Reviewing caesarean section rates these have been static for the last three years, as has that for our background population, although the rate in those with diabetes in pregnancy is considerably higher (52% versus 28%). Whilst for an unselected population this might be an unacceptably high caesarean section rate, in this particular subgroup of women there are many confounding factors that contribute to the rate, such as maternal age, BMI, (data for which are now collected within the antenatal case notes but not identified on the central hospital data collection) infant birth weight and indeed induction of labour. Given the high risk nature of these pregnancies and the potential adverse fetal affects, including intrauterine demise, intrapartum trauma (including shoulder dystocia, hypoxia and nerve damage), neonatal and indeed long term infant outcomes, and these end points must be given emphasis.

Figure 2: Caesarean section and vaginal deliveries 2001-2005

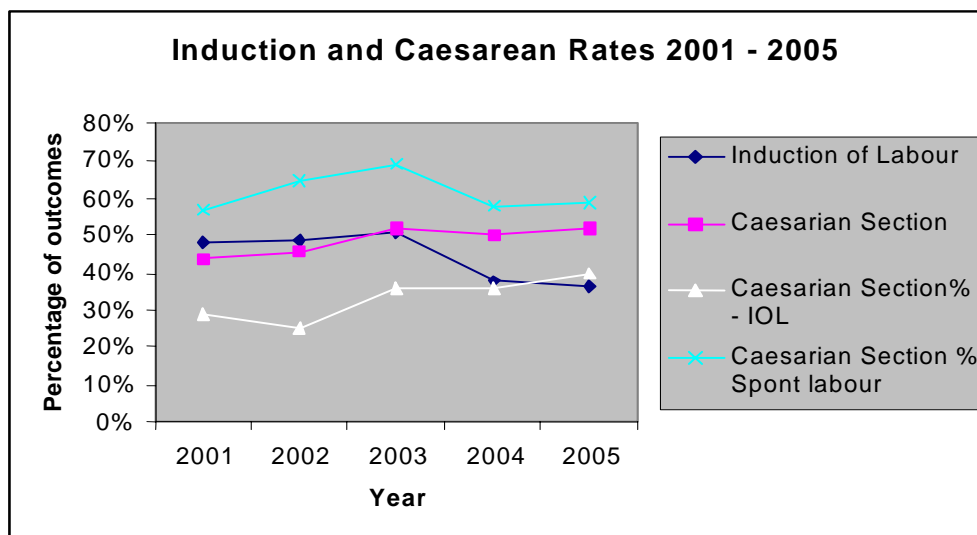
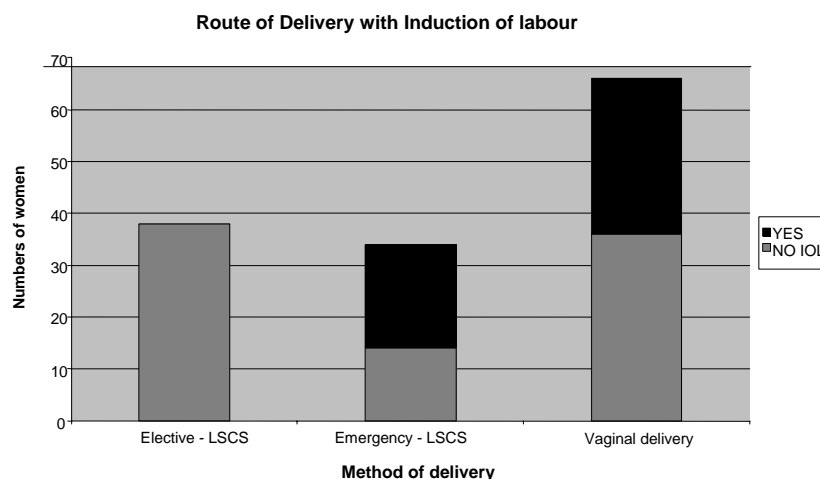


Figure 2 shows the caesarean section and vaginal delivery rates over time and the proportion of those women who had induction of labour, which culminated in caesarean section or vaginal delivery.

The induction of labour rate was 36% and 40% of these women delivered by caesarean section (compared to a caesarean section rate of 30% in all women induced) and 34% of those women who laboured spontaneously were delivered by caesarean section.

The elective caesarean section rate was 27.5% and the emergency rate was 24.6% (compared to 8.6% and 19.6% respectively for all women). It can be seen that the major impact on the diabetes in pregnancy high caesarean section rate is from the elective caesarean sections. There has been a fall in induction of labour rates over the last two years following a change in policy away from induction prior to 41 weeks in those pregnancies with uncomplicated gestational diabetes with good control (Figure 3).

Figure 3: Route of delivery with induction of labour



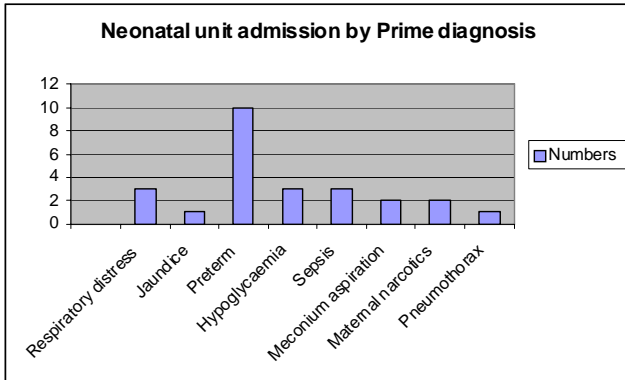
Fifty one percent of women with a diagnosis of gestational diabetes were treated with insulin in 2005 with a higher proportion than in previous years managed with oral hypoglycaemic agents. This treatment shift may reflect the commencement of participation in 2005 of the metformin in gestational diabetes multicentre trial in which consenting women are randomised to drug treatment, when necessary, of metformin or insulin.

The Preterm delivery rate < 37weeks was 16% however only four women (3%) delivered at <32 weeks.

Neonatal Outcomes

Twenty five of the 141 infants (18%) were admitted to the Neonatal unit. The reasons for admission are tabulated in Figure 4. There were three sets of twins born to these 138 mothers. There was one in utero demise at 22 weeks of a baby with birth weight of 542g born 5 days after diagnosis of gestational diabetes and secondary to a confirmed abruption with rupture of membranes, post natal GTT was abnormal. There were no perinatal deaths.

Figure 4: Neonatal unit admission by prime diagnosis

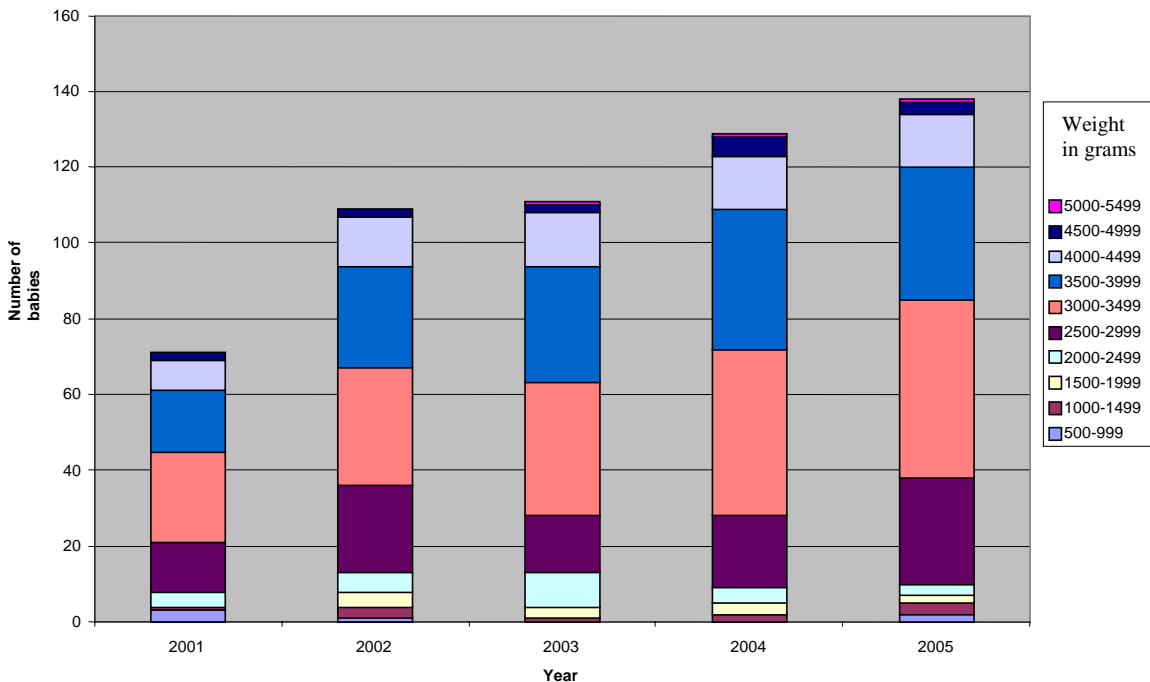


The incidence of macrosomia whether defined as >4000g or > 4500g has remained static at 13% for the former, compared to a rate of 16% in the background population a surprising but reassuring figure given the association of diabetes in pregnancy with fetal overgrowth. (66% of these babies were born by caesarean section).

There is a reassuring trend towards fewer babies being born at the extremes of birth weight i.e. small or large for gestational age and the proportion of those with birth weights between 2.5 and 4kg has increased over time (Figure 5).

These birth weights have not been analysed using customised growth charts or gestation adjusted and a move towards this would allow us to audit this outcome more meaningfully.

Figure 5: Birthweight of infants born to women with DIP



Conclusion

Women with diabetes in pregnancy represent a minority of those delivering within Christchurch Women's Hospital. However they are an important group in whom to optimise care because uncontrolled diabetes leads to poor obstetric and neonatal outcomes in the short term and also has the potential to impact on the long term health of babies. There is increasing evidence that maternal diabetes in pregnancy is associated with an increased risk of diabetes, obesity and the metabolic syndrome in the offspring¹⁻³.

With national epidemics of both diabetes and obesity and the move towards all professional groups involved in maternity care now advocating universal screening for GDM, it is expected that the proportion of women with some form of Diabetes during pregnancy will increase therefore this will continue to be an area of interest and importance in the future for service provision and the audit of outcomes.

References

1. Crowther CA, Hiller JE, Moss JR, McPhee AJ, Jeffries WS, Robinson JS. Effect of treatment of gestational diabetes on pregnancy outcomes. *N Engl J Med* 2005;352:2477-2486
2. Hoffman L, Nolan C, Wilson JD, Oats JJN, Simmons D. Gestational diabetes mellitus-management guidelines. The Australasian Diabetes in Pregnancy Society. *Med J Aust.* 1998;169: 93-7.
3. Silverman BL, Rizzo TA, Cho NH, Metzger BE. Long-term effects of the intrauterine environment. The Northwestern University Diabetes in Pregnancy Centre. *Diabetes Care.* 1998;21:B142-B149.

Dr Rosemary Reid - Senior Lecturer, Consultant Obstetrician and Gynaecologist

PERINATAL MORTALITY REPORT

Introduction

It is essential to learn lessons from any tragic outcome. This is particularly important in pregnancy and infancy. By careful and compassionate investigation of the circumstances and causes of perinatal death we can derive comprehensive and reliable information to assist understanding and learning for bereaved families and professionals involved.

In addition, the systematic, rigorous and formal process of recording and classifying perinatal death is essential for a broader understanding of the quality of care offered to families of pregnant women. By identifying trends in perinatal outcome at local hospital, regional and national levels, appropriate models of care and service delivery can be planned on the basis of robust, prospectively collected data. Such data allows auditing, benchmarking and research to lead to continuing improvements in perinatal survival.

The Perinatal Education Meeting held each month is the Christchurch Women's Hospital forum for discussing all cases of perinatal death. The meeting provides an educational opportunity as well as access to a multidisciplinary review of cases in order to assist in informing caring staff and parents after a pregnancy or neonatal loss.

In 2005, the Ministry of Health established the Perinatal and Maternal Mortality Review Committee (PMMRC) to formalise the process of local case review and to collect comprehensive and reliable national data about perinatal mortality. The rapid reporting of all perinatal deaths and the collection of data commenced in July 2006. However, we have been introducing aspects of the review process in Christchurch since July 2005 in anticipation of the introduction of the essential work of the PMMRC. Part of this report will present some of the work done by the group in CWH on the classification of causes of perinatal deaths according to the system adopted by PMMRC (the classification systems of the Perinatal Society of Australia and New Zealand).

This report will cover the following:

- The summary Perinatal Mortality Statistics for Christchurch Women's Hospital in-hospital births. These data will be in the context of trend information for the last 6 years (2000-2005). Regional and national comparative data will also be presented in similar format
- The trend in autopsy rates over the 6 years (2000-2005)
- The PSANZ classification of causes of all deaths for the 6 months from June to December 2005.

Definitions

The definitions used in this report are as follows:

Fetal deaths include all deaths of 20 weeks gestation or more at the time of delivery or a birthweight of 400 grams or more if the gestation is not known. Terminations are included (WHO 1975). This definition has been used in New Zealand since 1995.

Early Neonatal Deaths are live-born infants that die before 168 hours (seven days) after birth (WHO 1975).

Perinatal Deaths are fetal deaths (as above), plus babies that are live-born but die before 7 days.

Neonatal Deaths are all live-born babies that die before 28 days (early plus late neonatal deaths).

Postneonatal deaths are those that die from 28 days up to 1 year after birth.

Perinatal Mortality Statistics

Christchurch Women's Hospital In-hospital births

Since 2003 there has been a 71% rise in fetal deaths but the total births has only increased by 16% (Table 1 and Figure 1). In addition to greater fetal losses expected with a larger birth population another possible cause for this apparent increase is improved ascertainment of fetal losses over the last few years.

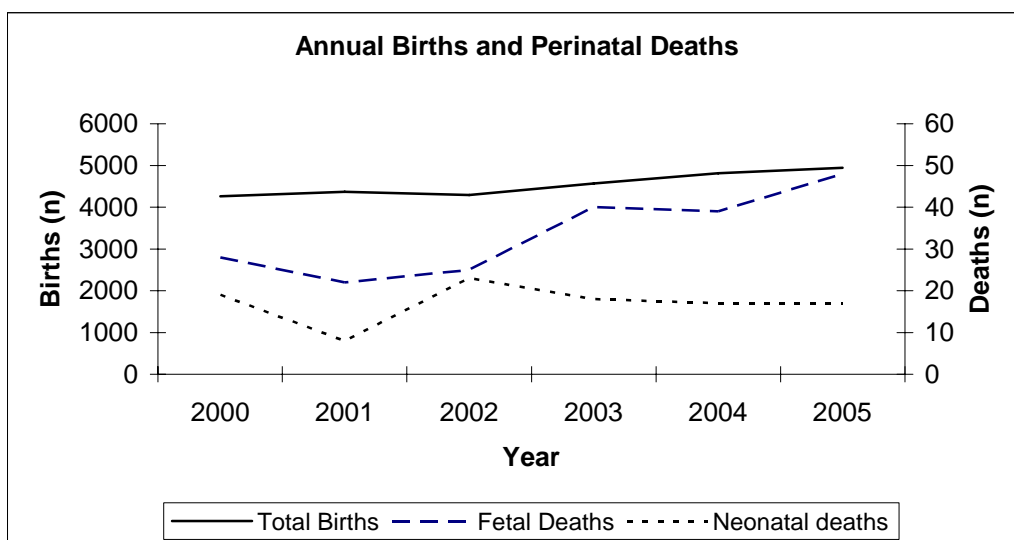
This data is derived primarily from searching the CareSys hospital information system. For 2005 a hand check of all Birthing Suite records was undertaken and 10 additional cases of fetal death were detected, not included in the CareSys search (10/48 fetal deaths or 20% of the total). The neonatal data was crosschecked with the Neonatal Unit database and the official returns to the Australia and New Zealand Neonatal Network.

A further audit of the fetal losses during 2000 - 2004 will be undertaken to retrospectively improve ascertainment and confirm or correct the present data.

Table 1: Perinatal Mortality Statistics: Christchurch Women's Hospital In-hospital births

Year	Total births	Live births	Fetal	Neonatal	Deaths	
			Deaths	0-6 days	7-27 days	28+ days
2000	4260	4232	28	17	2	0
2001	4369	4347	22	7	1	0
2002	4288	4263	25	15	6	2
2003	4567	4527	40	14	3	1
2004	4811	4772	39	13	2	2
2005	4942	4894	48	11	1	5

Figure 1: Annual births and perinatal deaths



Dr Glynn Russell - Consultant Neonatal Paediatrician,
Local Co-ordinator Perinatal Mortality Review Committee

OBSTETRIC ANAESTHETIC REPORT

Introduction

The Department of Anaesthesia, based at Christchurch Public Hospital, provides a 24-hour, seven-day-per week cover for the delivery suite at CWH. In office hours during the week (0800 to 1730) the service is consultant-based. After hours, dedicated Obstetric Anaesthetists cover the Registrars from off the site. Apart from their core work, Anaesthetists provide teaching, assistance with IV access, fluid management and emergency resuscitation when required. This is the fifth calendar year report prepared for Women's and Children's Health. Obstetric Anaesthetists actively review their performance and almost all women are interviewed after their anaesthesia by personal visit or telephone. Side effects and satisfaction are recorded and entered into a dedicated Obstetric Anaesthesia database. All numerator figures are derived from this. CareSys supplied the denominator figures i.e. 4896 women delivered 4995 babies during 2005.

Table 1: Parity

	2002	2003	2004	2005
	(n)	(n)	(n)	(n)
0	1328	1343	1505	1436
1	644	699	709	719
2	232	219	226	259
3	82	70	78	81
4	24	28	22	24
5	5	5	11	13
6	2	7	3	2
7	2	3	0	2
8	0	2	0	1
9	1	1	1	0
Total	2320	2377	2555	2537

Every woman delivering with an anaesthetic at CWH enters the obstetric anaesthesia database. All anaesthetic audit records are crosschecked against the contents of the labour ward "green folders" where delivery details are recorded. Every effort is made to ensure accuracy for demographic, delivery and anaesthetic data. There were 2537 separate NHIs recorded as having had 2708 obstetric anaesthetics in 2005. This represents 51.8% of all women delivering at CWH. The average age was 30.5 years. Tables 1 and 2 describe parity and ASA (American Society of Anaesthetists) grading. About 56.6% of women having anaesthesia were nulliparous. Only 3.9% were ASA 3 or greater.

So what were the proportions of the various anaesthetics available used at CWH in 2005? Table 3 indicates that over half were epidural, a third were spinal and the rest were combined spinal epidurals (CSEs) or general anaesthetics (GAs). The limited use of general anaesthesia in this population is regarded as important for reducing major morbidity, such as anaesthesia-related airway management complications.

Table 2: ASA status

	2002	2003	2004	2005
	(n)	(n)	(n)	(n)
1	1402	1543	1740	1754
2	792	715	692	685
3	130	119	118	96
4	1	0	5	2
5	0	0	0	0
Total	2325	2377	2555	2537

Table 3: Anaesthetic techniques

	2002		2003		2004		2005	
	(n)	%	(n)	%	(n)	%	(n)	%
Epidural	1371	55.3	1353	53.6	1433	52.7	1433	52.9
Spinal	722	29.1	786	31.2	895	32.9	890	32.9
Combined Spinal Epidural (CSE)	295	11.9	279	11.0	279	10.3	260	9.6
GA	91	3.7	105	4.2	110	4.1	125	4.6
Total Anaesthetics	2479		2523		2717		2708	

Table 4: Parturient post-anaesthesia follow up

	2002		2003		2004		2005	
	(n)	%	(n)	%	(n)	%	(n)	%
Seen	1475	63.4	1527	64.2	1689	66.1	1753	69.1
Telephoned	823	35.4	830	34.9	840	32.8	767	30.2
Lost	27	1.2	20	0.8	26	1.0	17	0.7
Total	2325		2377		2555		2537	

Anaesthetists make every effort to review satisfaction after anaesthesia (Table 4). In 2005, 69.1% of the women were seen and 30.2% were interviewed by telephone. A few (<0.7%) were lost to follow-up. Women are asked about their satisfaction with their anaesthetic and whether they would, in similar circumstances in the future, have the same technique again (Tables 5 and 6).

Table 5: Parturient satisfaction with anaesthetic

	2002		2003		2004		2005	
	(n)	%	(n)	%	(n)	%	(n)	%
Excellent	1677	67.6	1832	72.6	1952	71.8	1937	71.8
Good	543	21.9	470	18.6	535	19.7	530	19.7
Adequate	103	4.2	96	3.8	99	3.6	97	3.6
Poor	127	5.1	104	4.2	105	3.9	125	3.9
Not Asked	29	1.2	21	1.2	26	1.0	19	1.0
Total	2479		2523		2717		2708	

Table 6: Women happy to repeat anaesthetic

	2002		2003		2004		2005	
	(n)	%	(n)	%	(n)	%	(n)	%
Definitely	1978	78.4	1878	72.7	2130	78.4	2124	78.4
Probably	382	15.1	459	19.8	428	15.8	424	15.7
Maybe	123	4.9	92	4.7	110	4.1	126	4.7
Never	19	0.8	21	0.7	23	0.8	15	0.5
Not Asked	21	0.8	29	2.1	26	1.0	19	0.7
Total	2479		2523		2717		2708	

Side effects (Table 7) are defined as being either early (dural puncture, resuscitation required, reinsertion of needle and change to a new technique) or late (post-dural puncture headache, blood patch, ICU admission, nerve damage). The number of early (6.6%) and late (1.1%) side effects is quite low. There were no general anaesthetic-related side effects.

Table 7: Side effects

Complications of Regional Anaesthesia	2003		2004		2005	
	(n)	%	(n)	%	(n)	%
No early side effects	2369	93.9	2546	93.7	2530	93.4
No late side effects	2507	99.4	2690	99.0	2677	98.9
Reinsertion of epidural	27	1.1	21	1.4	40	2.8
Reinsertion of spinal	10	0.4	11	1.2	10	1.1
Change to new technique of anaesthesia	108	4.3	126	4.8	115	4.5
Significant early resuscitation required	4	0.1	2	0.1	2	0.07
Epidural post-dural puncture headache	8	0.6	9	0.6	10	0.7
Spinal post-dural puncture headache	2	0.2	6	0.7	9	1.0
Epidural blood patch for dural puncture headache	8	0.3	14	0.5	19	0.7
Neurological damage after spinal / epidural / CSE	2	0.0	0	0.0	0	0.0

The main early side effects are related to how well the spinal, epidural or CSE anaesthetics function and whether they needed to be replaced (Table 8) or changed to another technique (Table 9). The chance of a woman having another anaesthetic (either repeated or changed completely, having received an epidural or CSE), is about one in 12, or 8.2 %.

Table 8: Rate of repetition for obstetric regional anaesthetics

	2002		2003		2004		2005	
	(n)	%	(n)	%	(n)	%	(n)	%
Epidural	30	2.2	27	2.0	20	1.4	40	2.8
Spinal	11	1.5	10	1.3	11	1.2	10	1.1
CSE	2	0.7	0	0.0	1	0.4	1	0.4
Total (of all regional blocks)	43	1.8	37	1.5	32	1.2	51	2.0

Table 9: Rate of change to new anaesthetic technique

	2002		2003		2004		2005	
	(n)	%	(n)	%	(n)	%	(n)	%
Epidural	73	5.3	80	5.9	88	6.1	87	6.1
Spinal	15	2.1	19	2.4	25	2.8	16	1.8
CSE	15	5.1	9	3.2	13	4.7	12	4.6
Total (of all regional blocks)	103	4.3	108	4.5	126	4.8	115	4.5

The bulk of the other early and late complications are related to post-dural puncture headaches. The epidural post-dural puncture headache rate at CWH is average for a teaching institution with about 7.0 per thousand epidurals resulting in a headache. One in every hundred spinal anaesthetics results in a post dural puncture headache. In 2005 there were no documented neurological insults secondary to regional obstetric anaesthesia.

Anaesthesia and Birth Mode

The CareSys database is close to agreement with the obstetric anaesthesia database in terms of numbers of caesareans performed. It reports that 1344 delivered by caesarean section (438 elective and 906 emergency), whereas the obstetric anaesthesia database reports that there were 1348 caesareans (347 and 1001 respectively). The discrepancy in relative numbers of electives and emergencies is due to errors in classification by midwives, clerks and coders. Table 10 is derived from the anaesthetic database and details the mode of delivery and anaesthetic provided. The overall combined elective and emergency caesarean section rate for 2005 was 27.5%. This represents a 1.0% decrease on the overall proportion of women delivering at CWH, although the actual number of women having a caesarean section has risen by 27 cases compared to 2004. The caesarean rate has stabilised at about 28% for 4 years running now, with an average number per day = 3.7. Note that the total numbers of anaesthetics exceed those of women receiving them because some women received more than one and occasionally more than two anaesthetics for any given delivery.

The indication for epidurals and CSEs is usually maternal request for analgesia. The CWH epidural rate is calculated as being 34.6%. Therefore about 60% of all women requiring anaesthetics on the delivery suite were for pain in labour, even if the mode of delivery ended up being instrumental or operative. Of those requesting epidural or combined spinal epidural analgesia 34.3% had a normal vaginal delivery, 27.1% had an instrumental delivery and 41.3% had an emergency caesarean section.

Table 10: Mode of birth

Mode of Birth	Number of Women	Epidurals	Spinals	CSEs	GAs	Total Anaesthetics
Normal Vaginal Birth (NVB) only	564	489	12	84	0	585
NVB and Emergency LSCS (Twins)	1	1	0	0	0	1
NVB and Low Forceps (Twins)	3	3	0	0	0	3
NVB and Ventouse (Twins)	3	3	0	0	0	3
NVB & Man. Removal	8	6	1	2	0	9
Sub Total NVB	579	502	13	86	0	601
Emergency Lower Section Caesarean Section (LSCS) only	963	501	407	69	88	1065
Emergency LSCS (after failed low forceps & ventouse)	5	4	1	1	0	6
Emergency LSCS (after failed low forceps)	11	6	2	3	0	11
Emergency LSCS (after failed high forceps.)	0	0	0	0	0	0
Emergency LSCS (after failed ventouse)	22	18	5	1	0	24
Emergency LSCS (after ventouse & high forceps)	0	0	0	0	0	0
Sub Total Emergency LSCS	1001	529	415	74	88	1106
Elective LSCS only	347	5	334	8	8	355
Sub Total All Caesareans	1348	534	749	82	96	1461
Low forceps only	179	128	25	29	3	185
Low and high forceps	0	0	0	0	0	0
Low forceps & manual removal	5	4	3	0	2	9
High forceps only	5	3	3	0	0	6
High forceps & manual removal	0	0	0	0	0	0
Ventouse only	260	213	18	50	0	281
Ventouse and low forceps	59	43	7	13	0	63
Ventouse and high forceps	0	0	0	0	0	0
Ventouse, low forceps and high forceps	1	1	0	0	0	1
Ventouse and manual removal	3	3	0	0	0	3
Ventouse, low forceps and manual removal	1	1	0	0	0	1
Sub Total Assisted Birth	512	395	56	92	5	548
Manual removal only	97	1	72	0	24	97
	Women having an Anaesthetic	Epidurals	Spinal	CSEs	GAs	Total Anaesthetics
Grand Totals	2537	1433	890	260	125	2708

Summary

The CWH anaesthetic database figures for 2005 have been presented. These figures demonstrate a slight decrease in the caesarean section rate. Anaesthetists are involved with over half the women delivering at CWH. Overall, these women receive effective and safe care. Serious side effects of obstetric anaesthesia are rare. The post-dural puncture rate is also stable and still lies below the 1% benchmark for a teaching institution. Almost all women were followed up (only 0.7% were lost compared to 1% in 2004) and over 90% of those have good or excellent satisfaction, which has been a consistent figure in recent years.

Dr Nigel Skjellerup - Consultant Anaesthetist

LACTATION SERVICE REPORT

The Lactation Service based at Christchurch Women's Hospital (CWH) consists of two Lactation Consultants, one full time and one part time, the role includes, direct clinical contact and education of both staff and clients.

The Lactation Consultants continue to provide clinical support for women and their babies in the postnatal period whilst inpatients at CWH. Those women, who are cared for by the Team Care Service or the Women's and Children's Health (W&CH) Community Midwives, have access to the Lactation Service for up to six weeks post partum should they require additional support.

Clinical

There is an increased awareness of the service and therefore more women are requesting to see a Lactation Consultant. With the occupancy rate at CWH increasing the demand for this service often exceeds availability. Reasons for consultations are varied, but they are primarily for latching and positioning issues, anatomy anomalies of mother or baby, multiple births, expressing and pumping issues, mastitis, and ankyloglossia.

- Since the end of October 2005 the Lactation Consultants have been collecting and collating information on which area of the hospital consultations take place, the units of time spent with each client and whether they are seen as an inpatient or outpatient.

Table 1: Attendance volumes and average duration of attendance

Activity	Month								Total for period
	Nov 2005	Dec 2005	Jan 2006	Feb 2006	Mar 2006	Apr 2006	May 2006	Jun 2006	
Ankyloglossia (release of tongue tie)	4	7	7	4	4	6	3	3	38
Inpatients -Gynae	5	2	4	8	3	9	7	3	41
Inpatients -NICU	25	32	31	22	16	8	13	23	170
Inpatients - Obs	132	98	115	65	45	53	57	92	657
Inpatients - baby	2		6			2			10
Outpatients - mother	14	3	5	5			2		29
Total for month	182	142	168	104	68	78	82	121	945
Average duration of attendance (in minutes)	27	35	35	35	28	36	33	39	33

Antenatal classes

These classes continue to be held fortnightly and are well received by the women attending them. The feedback demonstrates how invaluable this service is in empowering women to be more active in their breastfeeding experience. In a random sample of fifty evaluation forms from people attending the Antenatal Breastfeeding Classes, 96% of the respondents stated that they felt more confident about breastfeeding and 100% stated they would recommend the classes. A follow up telephone survey of 120 people who attended the classes was undertaken in November 2005. In this survey, 69% of the respondents stated that the classes had been very beneficial, 28% beneficial, and 3% not beneficial.

Postnatal Support Group

The drop in session on the 1st Wednesday of each month continues to be offered, however since the move to the new site there has been a significant reduction in people utilising this service. Over the last few weeks of the 2005 year a new combined education session with the Physiotherapists was introduced for postnatal women on the ward.

Education

Education for staff remains a high priority to meet Baby Friendly Hospital Initiative (BFHI) and Midwifery Council requirements.

The following courses have been approved by Midwifery council:

- The Initial Breastfeeding study day (as part of the core competency) which has been approved for a 3 year period
- Challenge the Baby Study Day and the Refresher Study Day have been allocated 5 midwifery points and have been approved for a one year period in the first instance.

BFHI staff education sessions continue with classes scheduled for Ancillary staff, Medical staff, Nursing and Midwifery staff.

We have introduced a regular one hour education session which is aimed at meeting the education needs of all Ancillary staff. However these sessions are open to all staff should they wish to attend. Sessions are held on the 1st Wednesday of the month between 1pm and 2pm. Education sessions on breastfeeding have also been provided for the Diploma of Obstetrics and Gynaecology residential course, which is held twice a year.

Student Support

The Lactation Consultants continue to support the CPIT Faculty of Health and Science by accommodating Bachelor of Midwifery students. Each student has a one day placement with the Lactation Consultant during their second year of training. This placement gives the student a better understanding of the role of the Lactation Consultant and enables the student to access up to date information and resources on lactation.

Breastfeeding Rates

Overall our exclusive breastfeeding rates, on discharge continue to surpass the BFHI accreditation standard. The average exclusive breastfeeding rate at discharge from a BFHI accredited facility is 82%. The exclusive breastfeeding rates on discharge at Christchurch Women's Hospital for 2005 is 82.59%. The figures at Christchurch Women's Hospital reflect the commitment women have in the initiation of the breastfeeding and the skills and knowledge of the staff in supporting women to breastfeed.

Figure 1: Breastfeeding rates

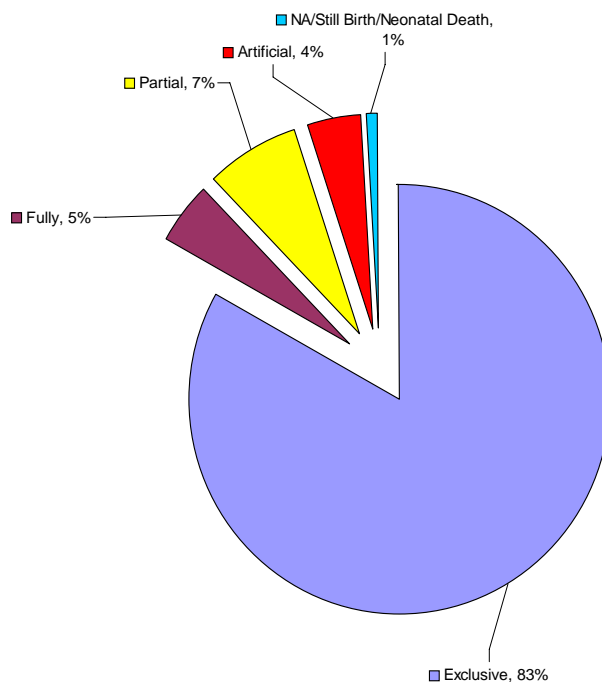


Figure 2: Breastfeeding category before the procedure

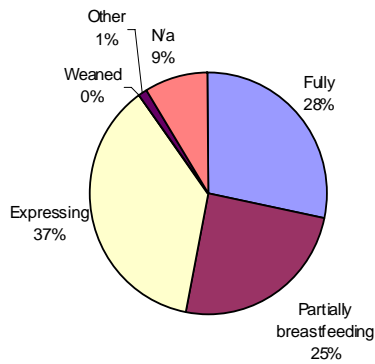
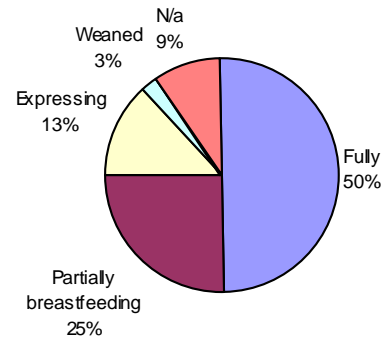


Figure 3: Breastfeeding category after the procedure



Ankyloglossia

Ankyloglossia or tongue-tie is a relative common condition with 68 tongue-tie releases being performed from 2005 - 2006. These releases were performed to facilitate breastfeeding. More boys 68% than girls 34% had this condition in the 2005/2006 year, it often runs in families. A Paediatric Consultant performs the procedure in the Lactation Consultants office, where the Lactation Consultant can assess breastfeeding immediately after the procedure.

Dianne Powley - Lactation Consultant
Hazel McGregor RN, RM - Lactation Consultant

GYNAECOLOGY SERVICE OVERVIEW

It has been another rather busy year at the Christchurch Women's Hospital Gynaecological Service. Our staff continue to work under great pressure but do so with great competence and dedication.

We have now had a full year at our new hospital and I think we would all agree that it has been a most wonderful development. In some ways we continue to miss the closeness of the culture that was present at the old site, but there are huge advantages to being where we are and these have become very evident since the shift.

The hospital seems to work very well and from a gynaecological point of view we are very happy.

Our Gynaecological Service has been improved by the shift from theatre 10 in the old Christchurch Hospital theatre block into theatre 24 in the new Day Surgical Unit and this has allowed our two theatres to be in close proximity with obvious efficiencies. Of course there is the added bonus that now all of our operating is done in our new block with the rather magnificent facilities that these theatres provide.

AGA continues to function well. It can be very busy at times and moves are afoot to try and limit the patients that are seen there to those who are deemed appropriate. Currently there is an audit underway to see what percentage of patients seen there is appropriate and we are assisted very ably in this task by Dr Clare Healy our GP Liaison Officer, who has done wonderful work in this and other areas. We are truly grateful to Clare.

Gynaecology Outpatients and Colposcopy continue to see large numbers of patients efficiently and effectively. There is a possibility however as waiting list restrictions become more strictly monitored that we may need to reduce the number of First Assessments that are seen. The new rules from the Government will bring about significant changes in this area.

The Gynaecological Ward continues to function well, at times under difficult conditions. Staffing will always be an issue but we are grateful for the staff that we have who are able to provide such confident and compassionate care to our patients. There are still a significant number of patients who come in for major radical, usually oncology, surgery and these provide additional challenges to our staff.

Lyndhurst Day Hospital continues to function effectively on the old site. There have been a number of staff changes over the last year which have brought about continuing improvement in the service that is offered. Patient Satisfaction Surveys coming through Lyndhurst indicate that the standard of care offered to these patients is of the very highest quality.

As you know there has been a review of the Lyndhurst Day Hospital service which has recently been completed and is currently under consideration. One of the options is to shift the Lyndhurst Service onto the new Christchurch Women's Hospital site. I believe that this option is not a satisfactory one. To bring this service onto our Christchurch Women's Hospital site would be extremely detrimental to both services. Personally I would like to see the Lyndhurst site redeveloped so they continue to provide pregnancy termination services as it does now, but with the addition of perhaps a Sexual Health Clinic and/or Family Planning, all on the same site. This would necessitate rebuilding but we should all be looking well into the future, not just into the next year or two.

Of all the developments that we have been a part of over the last year the most significant one, without a doubt, is the government-led Waiting List initiative.

This has had a huge impact on our community. There has been a major cull of our current waiting list with patients sent back to their General Practitioners for treatment and further assessment. It has been a most unfortunate development and has raised the ire of both the community and closer to home, our Medical and Nursing staff. I am not sure what the answer is, but I believe that the time has come for a major re-think of the Health Service countrywide so that these sort of things will not happen again.

One possibility is to consider introducing something similar to that which exists in Australia, namely an employment-related compulsory private medical assurance scheme, which would allow the huge majority of elective surgery to be carried out in the private sector. This would leave our public hospitals freely available for all acute and emergency care and to manage those patients for elective medicine and surgery who are not employed, or for other reasons are unable to participate in the employment-related medical assurance scheme.

Sadly we are faced with two retirements, one recently and one to happen. John Doig has recently retired and Colin Conaghan is to retire in December. Both of these fine gentlemen have given extremely distinguished and dedicated service to the women of Christchurch and Canterbury for 30 years. During their time here they have displayed diagnostic and therapeutic skills of the very highest order. They both continue to display the skills that put them at the very top of their chosen profession, but for personal reasons they have made the choice. I am sure you will join with me in wishing them both a long, happy and fruitful retirement. Both John and Colin will continue to practice their speciality from their respective private practices.

At this point I would like to thank Catherine Dwan and Pauline Clark for their tireless work over the years, both of these fine people put in a very long day and they are tireless and effective workers for the women of Canterbury and in Pauline's case of course now also for the Children of Canterbury and the South Island.

This will be my last report written as Clinical Director of Gynaecology. I have been in this post for some 14 years and I think it is time that I moved aside for someone younger with new ideas. I will of course continue my clinical duties as Gynaecologist and Gynaecological Oncologist to Women's and Children's Health.

I am grateful for the support and help that I have received during my time as Clinical Director from the Senior Medical Staff, the Nursing Staff and the Hospital Management in particular Catherine Dwan and Pauline Clark. It is with some sadness that I vacate this post on 30 September 2006, but I look forward, as we all will, to working with the new appointee.

Once again thank you to all of our staff Medical, Nursing, Management and Administrative for their help and dedication over the last year. I think it is fair to say that we are now well settled into the new hospital and we are starting to reap the rewards of the careful planning that went into putting this wonderful hospital on site, up and running.

Mr Michael Laney - Clinical Director Gynaecology

GYNAECOLOGY OUTPATIENT CLINICS REPORT

This table shows the activities and a breakdown of the specialty Gynaecology clinics provided by the Gynaecology Service over the last four years. Patients requiring Outpatient Hysteroscopy are referred directly from their General Practitioner to the Outpatient Hysteroscopy clinic which was introduced in October 2002. This has had an impact on the number of First Specialist Assessments in Outpatients Department. In 2004 a Triage Team was established to identify women who were required to be seen urgently and management plans prepared for those women being returned to General Practitioner care.

Table 1: Activities and breakdown of Speciality Gynaecology clinics 2002-2005

Gynaecology	2002	2003	2004	2005
First Visit				
Genetic Counselling	15	25	25	26
Gynaecology Consultant	1984	1857	1747	1644
Reproductive Endocrine	49	31	42	33
Infertility	137	115	97	59
Endocrine (Menopausal/PMT)	138	94	100	123
Combined Gynae/Oncology	59	55	51	78
Total First Visit	2382	2177	2062	1963
Follow Up				
Genetic Counselling	12	5	12	4
Gynaecology Consultant	3902	3868	3598	3470
Reproductive Endocrine	68	48	63	65
Infertility	373	330	287	216
Endocrine (Menopausal/PMT)	347	416	442	417
Combined Gynae/Oncology	477	436	469	442
Preadmit	2023	1935	1779	1767
Total Follow up	7202	7038	6650	6381
Total (excluding hysteroscopy)	9584	9215	8712	8344
Hysteroscopy	40	175	229	264
Total (including hysteroscopy)	9624	9390	8941	8608

Changes to practice has resulted in the reduction of Gynaecology Consultant follow up appointments due to women who undergo minor procedures via Day Surgery or Gynaecology Ward, are referred back to General Practitioners for follow up care post operatively.

Jane Allen - Charge Nurse, Gynaecology Outpatients Department

COLPOSCOPY AND HYSTEROSCOPY REPORT

Colposcopy

In 2005, there were 2658 women seen in the Colposcopy clinic, comprising 1026 newly referred women and 1632 follow up visits. The number of Lletz biopsies (treatments) performed were 311 and 5 laser treatments in the Colposcopy clinic were under local anaesthetic. This does not include treatments under general anaesthetic, Lletz, laser and cone biopsies. The number of patients that did not attend their clinic appointment, numbered 465. This is 15.6% as compared to 19% last year (2004).

Twelve colposcopists were employed by the service in 2005, one of these being a Senior Registrar. We continue to have an excellent support staff of Nurse Educator, Nurses, Secretary and Receptionist. Jill Lamb, one of our nurses has completed the smear takers course and is taking smears under supervision. She continues on her Masters of Nursing degree and has produced a widely acclaimed pamphlet to help Maori women stop smoking, from the perspective of their gynaecological health. Referring any woman directly to Jill at the time of appointment, I'm sure has a positive impact on cessation of smoking.

Continuing Education and Standards

We continue our long standing monthly meeting with the Pathologists to discuss our more difficult cases and this continues to be valuable. We are well used to using the Solutions Plus database, however have not as yet been able to audit our data through this. This is an important aspect of our care and we are working to sort this out.

We have been able to give appointments within the screening guidelines to all patients, however often with rescheduling or clinics having to be cancelled they may fall very slightly out of the guidelines.

Research

The trial comparing liquid based cytology with conventional smears continues with good recruitment, aiming for 1000 women.

Hysteroscopy Report

Outpatient hysteroscopy is now well established and 265 women were seen for Outpatient hysteroscopy in 2005, compared to 226 in 2004. Of these, 245 outpatient hysteroscopies were performed under local anaesthetic. Seventeen of the referred women were either deemed inappropriate for local anaesthetic and booked for general anaesthetic, or unable to be hysteroscoped under local anaesthetic and again booked for general anaesthetic.

For some of the women referred, the consultant felt the procedure was not necessary, for such reasons as resolution of symptoms, or felt hysteroscopy was not indicated. The most common reason for not being able to proceed was inability to dilate the cervix under local anaesthetic (8/17), 2 had IUCD's unable to be removed under LA and 2 were abandoned because of pain and syncope. Sometimes attempts at dilatation were abandoned because of patient discomfort.

One endometrial carcinoma was detected, the rest had benign pathology, or no curettings which is common in postmenopausal women. Proliferative phase endometrium was by the far the most common pathology, which is as expected as it often encompasses the women with anovulatory cycles who are more likely to have menstrual symptomatology, or endometrial pathology.

Tables 3 and 4 indicate referral source, age ranges and indication for hysteroscopy by age range.

The service continues to offer streamlined endometrial assessment for women with menstrual disorders.

Table 1: Source of referral

Source of Referral	
GP	19
Gynae OPD	56
Private Specialist	1

Table 2: Overall age bins

Overall Age Bins	
Age	Total
10-19	1
20-29	10
30-39	28
40-49	102
50-59	58
60-69	13
70-80	5
Grand Total	217

Table 3: Indication for referral

Indication for Referral				
Age	Post-Menopausal	Menorrhagia	Irregular Bleeding	Scan Abnormality
10-19	0	1	1	1
20-29	0	5	3	2
30-39	1	19	10	14
40-49	7	64	52	53
50-59	35	11	15	27
60-69	11	0	0	8
70-80	5	0	0	1

Table 4: Other reasons for referral

Other Reasons for Referral					
Other	20-29	30-39	40-49	50-59	Grand Total
Anaemia			1		1
lost IUCD	1			1	2
oceais spotting on mini pill			1		1
PCB		1			1
post coital bleeding		1	1		2
Removal of IUCD 10+years ago	1				1
Grand Total	2	2	3	1	8

Dr Helene MacNab - Gynaecologist, Clinical Leader Colposcopy

THE FERTILITY CENTRE REPORT

Overview

The availability of Government funding for second IVF cycles helped us reach 413 IVF cycles started in 2005, along with 398 embryo thaws. In addition to this there were 1205 cycles of cycle monitoring undertaken, 266 cycles of intrauterine insemination using partner semen and another 76 cycles using donor semen.

IVF Cycles

In 2005, couples whose first publicly funded IVF cycle did not result in a live-birth were entitled to a second funded cycle. This additional funding was brought in with the requirement that a woman under 36 years old on her first IVF treatment would only have one embryo replaced. This aimed to reduce the rate of twins conceived from IVF treatments, with the trade-off that it will slightly reduce the success rate.

As is evident from Tables 2 and 3, replacing only one embryo has been accompanied by a reduction in success rates from the fresh transfers. However we expect that the transfer of the additional frozen embryos will partly compensate for this. A woman under 35 still has a 36% chance of a pregnancy from the fresh transfer after each egg collection.

The effectiveness of these efforts to reduce the multiple pregnancy rate is shown by the rate of twin pregnancies from IVF dropping to 9% in 2005, compared to 22% in 2002 and 28% in 2004 (Table 4).

Table 5 shows details for cycles based on whether insemination was by routine IVF or ICSI (intracytoplasmic sperm injection). We are currently performing approximately 50% of our inseminations by ICSI.

The effect of age on pregnancy rates and miscarriage rates is shown in Table 6. For all years for which data is shown, pregnancy rate falls and miscarriage rate rises as maternal age increases.

Thaws of embryos frozen in previous cycles continue to provide around a quarter of total IVF pregnancies. The number of thaws has increased from 242 in 2004 to 398 in 2005. This results partly from the availability of funding for an additional cycle, and partly from the increase in embryos frozen as a result of only transferring one embryo in younger women. Tables 7 and 8 show that success rates from thaws have remained relatively constant over the last three years.

Table 9 shows the live birth data for 2002 - 2004. We expect another 99 babies to be born as a result of IVF treatments undertaken during 2005 and a further 62 from embryo thaws done during 2005.

For 2005, 68% of IVF cycles were publicly funded. The remainder are privately funded at costs ranging from around \$7,000 to \$10,000 per cycle.

Developments

In 2005 we performed our first two PGD (prenatal genetic diagnosis) cycles. Unfortunately one couple had no normal embryos for transfer, and the other achieved a clinical pregnancy with an unaffected embryo which subsequently miscarried.

Other Fertility Treatments

Not all couples who come for treatment need IVF. For the year 2004 we have 100 clinical pregnancies for couples who conceived having cycle monitoring or ovulation induction treatments, 39 from intrauterine insemination using husband's sperm, and 19 using donor sperm.

Table 1: Oocyte aspiration and embryo transfer

	2003		2004		2005	
	(n)	%	(n)	%	(n)	%
Number of cycles started	391		329		413	
Number of cycles with oocyte aspiration	338	86	284	86	374	91
Number of cycles cancelled	53	14	45	14	39	9
Number of cycles with embryo transfer	324	96	266	94	348	93

Table 2: Clinical pregnancies

	2003	2004	2005
Number of clinical pregnancies	135	117	117
Clinical pregnancy rate per egg collection (%)	40	41	31
Clinical pregnancy rate per embryo transfer (%)	42	44	34

Table 3: Ongoing pregnancies

	2003	2004	2005
Number of ongoing pregnancies	122	108	99
Ongoing pregnancy rate per egg collection (%)	37	38	26
Ongoing pregnancy rate per embryo transfer (%)	38	41	28
Ongoing pregnancy rate per clinical pregnancy (%)	90	92	85

Table 4: Multiple pregnancy rate

	2003		2004		2005	
	(n)	%	(n)	%	(n)	%
Singleton pregnancies	83	58	84	78	91	92
Twin pregnancies	38	31	24	22	8	9
Triplet pregnancies	1	1	0	0	0	0
Total	122		122		99	

Table 5: IVF (standard insemination) vs ICSI (intracytoplasmic sperm injection)

	2003			2004			2005		
	IVF	ICSI	Mix	IVF	ICSI	Mix	IVF	ICSI	Mix
Cycles	153	165	46	156	125	2	187	180	6
Clinical pregnancy rate per cycle (%)	42	42	33	39	43	100	29	34	33
Ongoing pregnancy rate per cycle (%)	39	37	17	31	34	100	25	28	33
Ongoing pregnancy rate per clinical pregnancy (%)	92	88	50	80	78	100	85	84	100

Table 6: Age of women showing pregnancy and miscarriage rates (excluding donor egg cycles)

Age	2003			2004			2005		
	Cycles	Clinical pregnancy	EPL*	Cycles	Clinical pregnancy	EPL	Cycles	Clinical pregnancy	EPL
20-35	190	38%	5%	158	43%	4%	180	36%	3%
36-38	80	41%	6%	56	43%	0%	82	32%	10%
39-41	34	32%	9%	42	26%	18%	55	31%	11%
42-50	34	26%	33%	28	18%	40%	16	11%	0%

*EPL - Early Pregnancy Loss

Table 7: Frozen embryo report

	2003	2004	2005
Embryo thaws	295	242	398
Embryo transfers	259	209	352
Clinical pregnancy rate per embryo transfer	22%	24%	22%
Miscarriage rate	13%	12%	18%

Table 8: Implantation rates

	2003			2004			2005		
	20-34	35-50	All	20-34	35-50	All	20-34	35-50	All
Fresh	36	24	29	37	23	30	32	22	25
Frozen	16	15	15	25	15	20	21	21	21

Table 9: Live birth rate report

	2002	2003	2004
Live births IVF	109	147	135
Live birth rate per egg collection	36%	44%	48%
Live birth rate per fresh embryo transfer	39%	45%	51%
Live births from frozen embryos	38	49	43
Live birth rate per frozen embryo transfer	20%	19%	21%
Total live births	147	196	178

Data not yet available for 2005

Dr Iris Sin - Scientific Director Andrology

GYNAECOLOGICAL ONCOLOGY SERVICE REPORT

The Gynaecological Oncology service is led by Mike Laney and Peter Sykes. Patients are managed in a multidisciplinary model. The hard work of this multidisciplinary team is acknowledged.

In 2005 the service had 208 new referrals. The patients had an average age of 58. Of these women 191 were referred with primary gynaecological cancers and the remainder with non-gynaecological cancers. The primary site and age are outlined in Table 1. Table 2 outlines morphology and stage.

These patients represent a stable referral pattern within the South Island. The number of women with life threatening cervical cancer continues to reduce otherwise no obvious trends are visible.

The transfer to Christchurch Hospital has offered markedly improved facilities for patients. A recent audit of waiting times has revealed median waiting times for treatment to be within levels that are acceptable to patients and staff.

Patients continue to be offered high quality multidisciplinary care and are offered participation in international multi centre trials and links with laboratory research furthering our understanding of these cancers.

In 2005 the Christchurch unit successfully offered training to a Gynaecological Oncology Sub-specialty Trainee. The first time such training in New Zealand has been recognised by the RANZ COG.

Table 1: Primary site and age of patients with new diagnosis of Gynaecological cancer 2005

Primary site	Number	Mean age
Ovary	68	58
Endometrium	66	64
Cervix	30	42
Vulva	12	67
Uterus	6	63
Endocervix	2	46
Peritoneal	2	51
Unknown	2	62
Para tubal	1	38
Fallopian Tube	1	70
Vagina	1	87
Non Gynae	17	60
Total	208	

Table 2: Morphology and stage tumours for 2005

Stage	Cervix	Endometrium	Ovary
1A	16	10	6
1 other	8	26	9
2	2	4	3
3	2	6	21
4		9	13
NA			1
Total	28	55	53

Table 3: Histological tumour types for 2005

cervix	Adenocarcinoma	2
	Squamous Cell -	24
	Undifferentiated	1
endometrium	Adeno non endometrioid	9
	Adenocarcinoma - Endometrioid	43
	Adenocarcinoma - Mucinous	1
	Carcinosarcoma (MMMT)	9
ovary	Borderline Mucinous	3
	Borderline Serous	11
	Adenocarcinoma - non serous	15
	Adenocarcinoma - Serous	34
	Carcinosarcoma (MMMT)	1
	Granulosa Cell - NOS	2
uterus	Leiomyosarcoma	2
	Endometrial Stromal - High Grade	1

Mr Peter Sykes – Gynaecological Oncologist

LYNDHURST DAY HOSPITAL REPORT

Lyndhurst Day Hospital is part of the Gynaecology service and is a stand alone clinic providing for first trimester termination of pregnancy.

Eighteen staff members make up the multidisciplinary team which comprises of two Clerical / Reception staff, seven Nursing and Ancillary staff, two Social Work /Counsellors and seven Certifying Consultant /Operating Surgeons.

Lyndhurst provides this service for women from Canterbury, the West Coast and Southland.

Table 1: Number of Terminations performed at Lyndhurst

Discharge date	Total
2003	2210
2004	2280
2005	2242
Grand Total	6732

Table 2: Ethnicity

Ethnicity	Discharge date			
	2003	2004	2005	Grand Total
African	6	9	11	26
Asian	301	283	260	844
Cook Island Maori	2	0	0	2
NZ European/European	1530	1602	1570	4702
Indian	3	0	0	3
Latin American/Hispanic	0	2	0	2
Middle Eastern	4	2	4	10
Not stated	22	27	29	78
NZ Maori	252	266	263	781
Other	18	27	29	74
Pacific Islander	72	62	76	210
Grand Total	2210	2280	2242	6732

Table 3: Non NZ residents

Month	Number	%
January	5	2.70%
February	14	7.00%
March	18	8.50%
April	10	5.90%
May	12	6.20%
June	10	5.20%
July	6	3.60%
August	13	6.40%
September	12	6.40%
October	9	4.70%
November	13	6.40%
December	16	9.00%

Table 4: Age of the client

Age	Discharge date			
	2003	2004	2005	Grand Total
13-15	48	49	48	145
16-18	302	290	320	912
19-21	426	473	477	1376
22-24	367	411	345	1123
25-27	301	280	286	867
28-30	224	205	229	658
31-33	200	170	191	561
34-36	149	164	162	475
37-39	117	142	97	356
40-42	64	75	64	203
43-45	10	18	20	48
46-48	2	3	3	8
Grand Total	2210	2280	2242	6732

This table shows that the age range for women having a pregnancy terminated, ranges from 13 to 48 years of age with the largest groups being the 19-24 years. All age ranges are consistent with 2004.

Table 5: Transfers to AGA at CWH

Transfers to AGA at ChCh Women's Hospital 2005	
January	2
February	1
March	3
April	2
May	1
June	2
July	2
August	0
September	2
October	1
November	2
December	2

Women are transferred for follow up care for the following reasons: haemorrhage, failure to dilate the cervix, query retained products of contraception or possible perforation of the uterus.

Dr Robert Aitken - Medical Director
Kate Paterson - Charge Nurse

GP LIAISON REPORT

The GP Liaison role in Gynaecology was established in 2004. During 2005 I have been involved in several projects with the aim of improving the primary/ secondary care interface and smoothing the transition for the patient between the two services.

- Ministry of Health forums are held once or twice a year. This provides an opportunity to meet with GP Liaison colleagues from other DHBs and share ideas as well as learning from successful initiatives from other centres
- Taking part in the development of a new national CPAC scoring tool for Gynaecological surgery was a very interesting experience. I valued the opportunity to give a GP perspective to the group as well as learning about the current prioritisation issues from the specialists
- GP Liaison Newsletters are sent out to all GPs in the DHB. This enables us to provide up to date information and advice on current topics of interest. For example, paragraphs have been contributed covering such topics as managing hyperemesis in general practice, early bleeding in pregnancy and pre-eclampsia screening
- A very successful initiative, which concluded in October 2005, was the “ GP Mirena insertion clinics”. These clinics allowed 38 GPs to up skill in IUCD insertion and taking pipelle biopsies. The Gynaecology Outpatient Service now holds a list of GPs who are able to offer this service to patients within the primary care community, as an alternative to outpatient treatment. This results in greater access to these services within the DHB
- Another ongoing project has been contribution into the development of pro-formas for outpatient referral of common gynaecological conditions. The long-term aim is for these documents to be available electronically within the GP surgeries both as a management guide and also a referral form, should the latter become necessary
- Education of hospital staff is a core activity within the DHB. I have enjoyed delivering education sessions to both Doctors and Nurses, providing general practice perspective on various topics within Women’s health
- Throughout the year I have appreciated the opportunity to contribute to various service reviews, reports, outpatient triaging and audits done within Women’s health. This opportunity is a great way of improving understanding and communication between various service providers within the health system.

Dr Clare Healy - GP Liaison

NEONATAL SERVICE OVERVIEW

The Neonatal Service has benefited immensely from the relocation to the Christchurch Campus. The design which focused on patient flows, has resulted in clearly defined clinical, support, staff and education areas on the one floor. There is enhanced security for staff and families/whanau and the ability to flex the levels of care with minimal blocking of intensive care (level 3) beds by special care (level 2) babies. The model of care is more open plan than adopted by others, who have recently updated their neonatal unit. However resources of staffing and how nurses worked were influential in the final local outcome. As expected and planned for many post completion defects relating to the building were worked through. These included issues relating to fridges / freezers and condensation / heating issues.

Innovation within the service was maintained throughout the year. A multidisciplinary project aimed at improving oral feeding outcomes for preterm infants, with a potential for decreased length of stay and improving successful breast feeding resulted in the development of resource tools to guide nurses. Separate resources were targeted to meet needs of babies under 32 weeks and above 32 weeks. The working group involved the Clinical Director, Lactation Consultant, Paediatric Speech Language Therapist, Neonatal Physiotherapist, Outreach Nurses and Clinical Coordinator. Clinical Supervision was introduced to the Neonatal Coordinator group and was well received. An environmental audit on lighting and sound was commenced with an initial staff questionnaire on lighting circulated and assessed. A humidified incubator audit was also completed. Sucrose audit results were completed and the practice of using sucrose for painful procedures such as heel pricks and during IV cannula insertion is now a recognised practice within the service.

Two major infection control episodes occurred in 2005. Multidisciplinary collaboration between the Neonatal Service, Infection Control Nurse Specialist and the Microbiology department lead to satisfactory resolution of both and reinforced our infection control policies. The first related to an outbreak of a gentamicin resistant Staphylococcus Aureus (GRSA) at the Wellington Hospital Neonatal Unit in March 2005 which closed the Wellington Hospital Neonatal Unit to admissions. We identified that an infant transferred from Wellington to Christchurch Women's Hospital in January 2005 was colonised with this organism. Investigations ensued that involved screening of all staff identified as having cared for the infant, which showed there had been no colonisation of staff and no potential for cross infection. In December a cluster of four babies colonised with MRSA was identified in the NICU. The unit design enabled us to keep current babies separate from new admissions until swab results were back on all babies and staff. No other cases were identified and the outbreak was quickly and successfully controlled. The layout of the new facility proved crucial in the management of this outbreak. An increase in the number of patients presenting with MRSA has been noted, largely in those who do not fit the high-risk category and is likely community rather than hospital acquired.

The annual CDHB Staff Influenza program occurred in March/April. Infection control issues pertaining to pandemic planning were identified and meetings held throughout the year. The Infection Control Nurse Specialist attended the Quality Health New Zealand Surveyor update days in her capacity as a credentialed surveyor for Certification and Accreditation for Quality Health NZ. She was appointed the Chair of the NZNO National Division of Infection Control Nurses Regional Group.

The integration of the Child Health Service into the division in late 2004 ensured for 2005, a closer working relationship with paediatrics. A challenge for the Service was the six month secondment of the Service Manager role into Child Health Service Manager role initially part-time in both areas and then as a full secondment. This was possible with the support of the senior nursing team particularly the Outreach Facilitator who was seconded into the Neonatal Manager's role for most of this period. The impact of the move and impact of back filling by senior Nurses for various reasons on Clinical Nurse full-time equivalents (FTE) was monitored and managed by employing nursing FTE over the specified budget. Even then shortfalls existed.

Bernard Hutchinson - Neonatal Service Manager

NEONATAL CLINICAL NURSE EDUCATOR REPORT

The relocation of Christchurch Women's Hospital in March of 2005 presented the Neonatal Service (and indeed the whole of CWH) with a challenge in maintaining education and competency requirements for Nursing Staff. Essentially the first six months of 2005 were severely compromised when it came to providing education and competency training. The second six months of 2005 were very focussed on regaining "lost ground". This was achieved and I believe our overall education and competency requirement hours compare favourably with our 2004 statistics.

The months of February and March were focussed entirely on orientating all CWH staff to the new Christchurch Women's Hospital. This was a combined effort on the part of the three Service Clinical Educators and the relocation team. All CWH staff were required to attend a 4-hour orientation programme before being allocated their new identification badge. Excluding sickness and extended leave, we were able to achieve almost 100% compliance with this project.

Competency Based Practicing Certificates continue to shift the responsibility of professional development and education to the individual RN and RM. The Organisation continues to facilitate and provide resources for ongoing education, but the individual has the responsibility to attend and meet the Nursing and Midwifery Council requirements for their Practicing Certificate.

The second half of 2005 saw the introduction (as a result of the recently signed MECA) of the CDHB Professional Development Recognition Programme (PDRP). This has both significant professional and financial benefits to any Nurse who wishes to become part of the programme. The launch of the PDRP has continued to encourage Nurses to become active and integral in the planning and progression of their own professional development, this is indeed a milestone in the history of Nursing in the Canterbury DHB.

The Newborn Resuscitation Programme continued to evolve for all Midwives and Neonatal Nurses working within the CDHB. In addition the programme is provided to all CWH access agreement holders as well as the Diploma of Obstetrics and Gynaecology participants. Newborn resuscitation sessions were provided (primarily by the Neonatal CNE, Neonatal Clinical Director and until her departure in June 2005, the Midwifery Educator). This involved dozens of "in house education sessions" as well as sessions at Ashburton Hospital, Rangiora Hospital, Lincoln Hospital, Burwood Birthing Unit, St. George's Hospital, and School of Midwifery and as required in other appropriate areas such as the Paediatric Department. The CWH Neonatal Resuscitation Educators are integral in the development of New Zealand National Standards as well as the framework for a nationally recognised course.

Table 1: Neonatal Service clinical education hours 2005

	2004 hours	2005 hours
Preceptorship and Orientation	1128	1208
Study days and workshops (paid and unpaid)	1171	1125
Video education	86.9	145
Formal clinical education hours	449.8	472
External lectures by CNE	34.25	21.5
Nursing student placement hours	1164	658
Midwifery student placement hours	480	648
Observers and other placement hours (Internal)	213	220
Total	4726.95 hours	4497.5 hours

Michael McIlhone - Clinical Nurse Educator

NEONATAL OUTREACH REPORT

During 2005 the Neonatal Outreach Service (NNORS) continued to support families with high service needs. Both the numbers of admissions to NNORS and acuity were similar to 2004 with only 10 less infants being admitted to the service than for 2003. The complex conditions ranged from infants with naso-pharyngeal airways and oxygen therapy care to children that were enterally fed. NAS (Neonatal Abstinence Syndrome) infants discharged into our community program were marginally down on the previous year. These families often had multiple social issues that had to be worked through as part of the ongoing care. The number of contacts however are marginally less possibly due to more infants having no significant concerns on discharge, therefore requiring less input from the outreach service.

The Outreach Service was instrumental in gaining approval for a six month pilot program for a Discharge Facilitator in the Neonatal Unit. The reason for this was twofold. Firstly some parents had identified via the Outreach surveys that for them discharge planning was rushed and uncoordinated, especially for complex infants. Secondly, discharge planning is part of the Neonatal Outreach role, but due to demands in the community was not always fulfilled in the nursery setting, leaving parents feeling confused and frustrated. The Discharge Facilitator was employed for 16 hours per week. We found that with limited hours she was only able to see families where there were high infant needs, such as poor feeding and complex medical conditions. She was also very active in ensuring that discharge-planning meetings were organised for families where the infant had multiple issues. The role also provided continuity of information between health professionals. It was often referred to as the 'glue' in the process of discharge planning. It was not her role to do the planning but to make sure that staff caring for the infant and their family undertook appropriate teaching and preparation for discharge. Evaluation of the pilot program resulted in a request for a permanent 0.6 Discharge Facilitator position from the Neonatal Homecare budget.

Table 1: Health concerns on discharge

	2002 (n)	%	2003 (n)	%	2004 (n)	%	2005 (n)	%
NAS program	13	3.4%	13	4.5%	26	9.1%	20	7%
Home oxygen	7	1.9	7	2.4	8	2.8%	6	2%
Enteral feeding	8	2.1	6	2.1	6	2.1%	9	3%
Palliative Care	1	0.3	-	-	1	.035%	-	-
Nasopharyngeal tube	1	0.3	1	0.3	2	0.7%	2	0.7%
CPAP	1	0.3	-	-	-	-	-	-
Apnoea monitors	28	7.4	22	7.7	25	8.8%	18	6.5%
Transitional care	317	84.3	238	83.0	230	77%	222	81%
Totals	376		287		283		273	

Table 2: Infants on NAS program

	2001	2002	2003	2004	2005
Infants on program	34	13	13	26	20

Table 3: Babies admitted to the Neonatal Service

	2001	2002	2003	2004	2005
No babies admitted to service	358	376	287	283	273
Contacts	-	2639	2608	2984	2786

Table 4: Neonatal Outreach acuity

Acuity	2002			2003			2004			2005		
	(n)	%	LOS	(n)	%	LOS	(n)	%	LOS	(n)	%	LOS
1	94	52.8	28.3	193	68.9	27.2	183	64.6%	27.4	185	67.7%	28
2	96	36.5	41.8	70	24.3	45.8	62	21.9%	46.5	64	23%	57
3	19	10.7	74	19	10.7	137	53	13.4%	158.8	22	8%	143

Table 5: Discharge facilitator (figures for six month pilot)

Discharge planning meetings	Complex infants	Others requiring additional input
10	23	72

Anne Morgan - Outreach Facilitator

NEONATAL CLINICAL REPORT

The value of a database is measured firstly by the certainty of the data it contains. The number of variables and the clinical importance allow assessment of the impact of change in management on important outcomes. The data is as secure as we can achieve and a result of continued commitment of Nina Mogridge. For 2005, we again had a busy year. Not only because we moved to a state of the art Neonatal Unit, but because the babies born continued to need our service. Whether they are very preterm, very small or term with less severe problems they are an important part of our work. If we only looked at total numbers then you would think we had spare cots frequently in 2005. However, raw numbers do not indicate complexity and some interesting changes in admission patterns are seen.

Table 1: Admissions to the Neonatal Service

	1998	1999	2000	2001	2002	2003	2004	2005
Number of admissions	511	598	629	602	736	743	751	612
Number of Infants	487	571	603	578	726	736	735	602
Inborn	405	480	520	504	652	660	671	535
Outborn	82	91	83	74	74	76	64	67

Total admissions to the Neonatal Service reduced in 2005 to 11% of the proportion of total births, down from 14.1% in 2004, 14.7% in 2003 and 15.4% in 2002. However to understand this a closer look at the proportions in the birthweight groups and gestations is required. Births in Christchurch Women’s hospital continue to rise, as do the total births in Canterbury. The stresses and strain on staff continues at peak times and a reduction in Nursing FTE lead babies being born in other level 3 units, due to insufficient nursing numbers not due to space constraints.

In 2005 we had three senior registrars, three nurse specialist advanced out of the eight members of staff that work 24/7 making clinical care decisions. This level of expertise may have had an impact on lower admission rates of babies at the margins i.e. 35 and 36 weeks and at term (37 weeks or more). Keeping babies with their Mothers where practical is a priority. It is dependent on managing the babies collaboratively with the Birthing Suite and Maternity Unit Midwives. If this hadn’t occurred more babies may have been transferred out inutero for delivery when baby numbers exceed capacity for the staff and acuity.

Term admissions were 32% lower in 2005. Several factors contribute to this: assisting babies when they transition at birth with CPAP available in every delivery room since April 2005, can assist in reducing the effort of breathing while lung fluid is absorbed. These babies have traditionally been admitted for a short time – 30% of our term babies in a previous audit were admitted for < 24 hours. They also are frequently not included in the ward census taken at 0800, as admission and discharge to the postnatal ward occurs between the 24 hour time frame. In fact the total patient days of at 0800 daily are very consistent over the last three years. Mean 10034.5 range 10003-10707.

Figure 1: Term admission rates

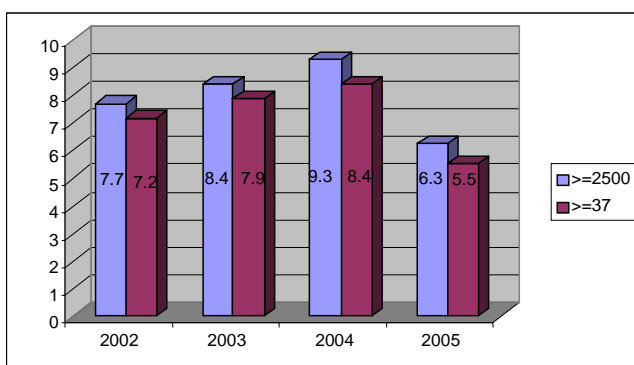


Table 2: Retrieval numbers from other birthing units

Transfer/Retrieval from	2001	2002	2003	2004	2005
Other CHCH birthing units	19 +10	25 +10	26 +14	29 +21	20+16IB
Canterbury	7	7	6	2	6
Homebirths / Born before arrival	8	11	6	7	7
South Canterbury	3	5	13	6	8
West Coast	7	6	7	9	8+1
Nelson/Blenheim	3	1	0	1	3
Otago / Southland	16	8	13	8	13
North Island units	11	11	5	2	2
Total	74 +10	74 +10	76 +14	64 +21	67+17

Retrieval numbers have fallen from the other Christchurch birthing units in 2005. The fall is greater than the 10% fewer births combined for the DHB primary units of Lincoln, Rangiora and Burwood. This year, I have included the number who were born at CWH (IB=inborn) transferred to a primary unit less than 12 hours of age and were then retrieved for treatment. The retrievals from Dunedin (2) and Wellington (1) reflects babies who were transferred inutero when our unit was too full. The reduction in outborns with a gestation below 32 weeks continued again reflecting timely transfer of mothers in threatened preterm labour. The retrieval team of Nurses and Doctors were instrumental in the safe move from the Colombo Street site in March 2005. They are still involved in transfer of babies to theatre and radiology for investigations not reflected in this chart.

Table 3: Admissions to the Neonatal Service by birthweight group

Birth weight	Live births	Admitted	Admitted %	Survived	Survived % of liveborn	Outborn admitted	Outborn survived	Survived % of total admitted
<500gr	4	1	25	0	0	0	0	0
500 - 749gr	8	6	75	5	87.5	1	1	85.7
750 - 999 gr	16	16	100	14	87.5	3	3	89.4
1000- 1499gr	47	47	100	45	95.7	2	2	95.9
1500 - 2499gr	268	180	67.2	179	99.6	16	14	98.9
>=2500gr	4509	285	6.3	283	99.9	45	44	98.7
Total	4852	535		526		67	64	

Table 4: Admission to the Neonatal Service by gestational age

Gestational Age	Live births	Admitted	Admitted %	Survived	Survived % of liveborn	Outborn admitted	Outborn survived	Survived % of total admitted
<=28wks	38	33	86.8	28	86.8	5	5	86.8
>=29wks - <32wks	42	41	97.6	41	100.0	3	3	100
>=32wks - <=36wks	330	219	66.4	218	99.7	11	10	99.1
>=37wks	4442	242	5.5	239	99.9	48	46	98.2
Total	4852	535		526		67	64	

There were less babies admitted under 29 weeks or below 1000 grams compared with 2002/3, but more than in 2004. Survival rates remain consistent for these extremely preterm infants. The obstetric management for suppression of preterm labour was changed to nifedipine in 2003. In 2005 the use of the fibronectin test commenced. If negative, it is highly associated with no delivery in the next 7 days. If positive, a woman is likely to remain admitted and under active review. Term admission as a proportion has reduced to 45% of the total admission compared with 54% in 2004.

Cause of Death

Table 5 identifies neonatal deaths of babies born alive and who die before one month of age or discharge home. It includes one baby transferred after birth from the West Coast and another from South Canterbury included, as these DHBs are in our tertiary regional area. Stillbirths are not collated here but these and the neonatal deaths for Christchurch Women's Hospital births are now discussed in a section on perinatal mortality. For babies admitted to the Neonatal Unit the common reasons for death are extreme prematurity, and chronic lung problems due to extreme prematurity and pulmonary hypoplasia. This year two babies died due to hypoxic encephalopathy. Congenital abnormalities included two babies who required surgery.

Table 5: Neonatal deaths

Gestational age	Number	Cause of death	Place of death
20-24 weeks	5	Extreme prematurity	Birthing suite
24	2	Extreme Prematurity	Neonatal unit
23	2	Chronic lung disease	Neonatal unit
30	1	Unable to resuscitate, PROM	Birthing Suite
32	1	Pulmonary hypoplasia	Neonatal unit
27,34,37,39	4	Congenital anomaly	Neonatal unit
Term	2	Hypoxic encephalopathy	Neonatal unit
Term	1	Inutero hypoxia	Neonatal unit
Total	6LWD, 12 NNU		

Respiratory Support

Table 6: Number of newborns receiving assisted ventilation

Gestation	Admitted to NICU	Ventilation alone	CPAP alone	Ventilation and CPAP	No Ventilation
<=28 wks	38	4	6	27	1
>=29wks - <32 wks	44	1	23	10	11
>=32wks - <=36 wks	230	7	51	10	161
>=37 wks	290	22	43	4	221
Total	602	34	123	51	394

(Ventilation= includes conventional and high frequency ventilation)
(CPAP = Continuous positive pressure ventilation).

Figure 2: Assisted ventilation

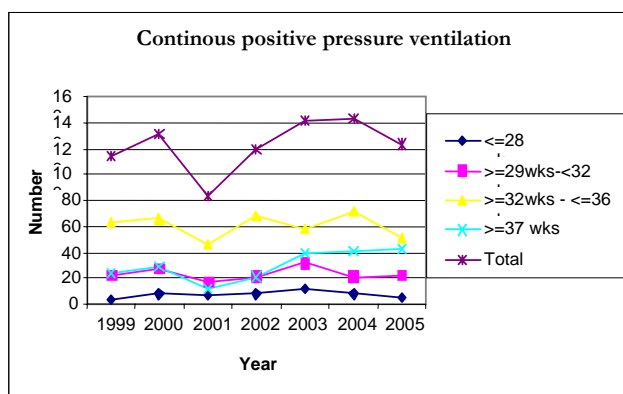
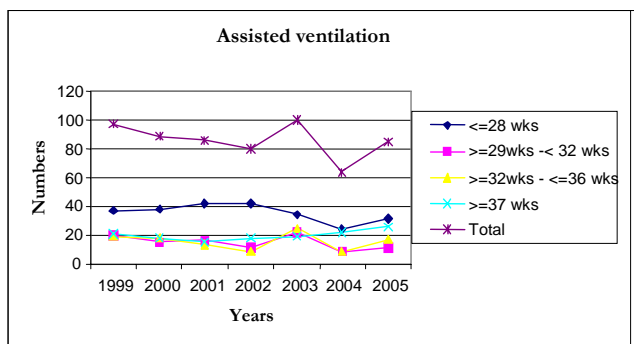


Figure 3: Continuous positive pressure ventilation



Comment

Figures 2 and 3, show the continued trend for CPAP to be the most frequent form of respiratory support for all gestation groups. Total babies receiving CPAP now appears constant. Numbers of babies ventilated fell in all categories except those 37 weeks or more. This is due to the reduced admission with gestations < 32 weeks, 32 – 36 week infants are more likely to receive CPAP alone and term babies reason for ventilation a combination of respiratory distress and post surgery. The time on CPAP can be considerable for babies less than 28 weeks and the level of nursing care required is not significantly altered by this less intense type of respiratory support.

Surgical Cases

We provide surgical management for Canterbury, South Canterbury, the West Coast as well as Otago and Southland. Major surgical cases increased in 2005 and at times intensive care was predominantly filled with “surgical” babies. A number of the cases were complex and required admission for prolonged periods. Disappointingly one case was transferred to Wellington inutero because we were full and had its entire care there so excluded from our numbers. PDA ligations fluctuate and are carried out in the extremely preterm babies whose ductus’ fails to close after two courses of indomethacin. They carry high case weights due to their need for highly specialised care irrespective of the surgical episode. The incidence of NEC requiring surgery has increased over the last three years again occurring in the most preterm infants who often have enteral feeding difficulties preceding the diagnosis.

Table 7: Surgery

Surgery	2001	2002	2003	2004	2005
PDA ligation	6	6	1	2	5
Gastroschisis /Omphalocele	3	3	7	5	5
Oesophageal Atresia/ TOF	2	2	3	2	3
Duodenal anomalies	0	2	0	1	2
Colon atresia	2	0	0	0	1
Ileal perforation / NEC	2	1	4	4	5
Hirschsprungs	1	1	1	3	3
Imperforate Anus	0	4	0	1	2
Urologic	0	2	1	0	1
Gastroscopy/Nissen	1	0	0	0	1
Diaphragmatic hernia	1	1	1	2	2
Neurosurgical	0	3	1	2	1
Thoracic mass	0	0	2	0	1
Abdominal incision					1
Total Paediatric surgery	18	22	20	20	32

Key Performance Indicators

Intraventricular Haemorrhage

The data is for all babies < 32 weeks gestation admitted to CWH who have a scan in the first 10 days of life.

Table 8: Intraventricular haemorrhage

		1998	1999	2000	2001	2002	2003	2004	2005
<30/40	Total	30	36	39	40	67	49	44	52
	Grade 1	2	4	5	8	8	4	9	9
	Grade 2	3	1	2	3	12	4	1	2
	Grade 3	0	5	2	0	5	0	3	3
	Grade 4	2	0	0	0	0	1	1	1+1DN+1WN
>=30 and <32	Total	23	26	32	21	28	43	30	30
	Grade 1	4	0	9	1	2	2	4	4
	Grade 2	0	0	1	0	1	2	0	1
	Grade 3	0	0	0	1	0	0	1	0

Significant ultrasound abnormality includes Grade 3 and 4 haemorrhages. One of the babies with grade 4 IVH was from Dunedin, another was a Wellington baby born here, because of lack of space in the Wellington unit. Our rate of any IVH and Grade 3 or 4 are within the clinical indicator acceptable levels compared to other ANZNN units.

Retinopathy of Prematurity

Table 9: Data for babies alive and remaining in the unit from 6 weeks post delivery when examinations start

		1998	1999	2000	2001	2002	2003	2004	2005
<30/40	Total	30	36	39	40	67	49	44	52
	Stage 1	5	10	10	9	21	8	2	2
	Stage 2	3	6	4	1	3	3	1	2
	Stage 3	2	0	2	1	1	1	0	2 DN
	Stage 4						0	0	0
30 and <32	Total	23	26	32	21	28	43	30	30
	Stage 1	0	2	3	0	1	3	0	0
	Stage 2	0	0	1	0	0	1	0	0
	Stage 3	0	0	0	0	0	0	0	0

Infants < 31 weeks and < 1250 grams have routine retinal examination from 6 weeks after birth until maturity of the retina vascularity is reached. In 2005 no infant was treated for Stage 3 ROP born in Christchurch, although two infants were transferred from Dunedin for assessment and did not require treatment. Our data is consistent and the reduction in ROP of any stage is reduced. Multiple factors are contributing to this and include; less ventilation and earlier CPAP resulting in more stable oxygenation, less blood transfusions and improved nutrition. We are now one of the units with lower rates in the ANZNN units.

Sepsis

Sepsis includes infants with positive blood cultures excluding those thought to be contaminants, positive urine or cerebrospinal fluid. Early sepsis rates have settled from a peak in 2003. As our birth numbers for Canterbury have risen, this is an effective rate reduction. Both Group B Strep and Ecoli were the causes. Intrapartum antibiotics for risk factors such as preterm labour and prolonged rupture of membranes are an important preventative strategy. Coagulase Negative Staphylococci is the predominant organism causing late infection and the older infants have their infection during the recovery phase from surgery when they are unable to tolerate enteral feeds. We had five late gram negative sepsis episodes in babies from gastrointestinal source. The fungal infection rate is stable and usually in babies less than 26 weeks gestation.

Table 10: Sepsis

		1999	2000	2001	2002	2003	2004	2005
<30/40	Total	36	39	40	67	49	44	52
	Early Sepsis	4	0	1	0	2	0	1
	Late sepsis	13	12	17	11	8	9	6
	Bacterial- non CNS	7	5	6	2	2	3	2
	Coagulase Negative Staph	8	6	9	7	7	5	3
	Fungal	2	1	2	2	1	1	2
30 to <32	Total	26	32	21	28	43	30	30
	Early sepsis	0	1	0	0	2	0	0
	Late sepsis	0	1	3	3	4	1	0
	Bacterial	0	0	0	1	3	0	0
	Coagulase Negative Staph	0	2	3	2	3	1	0
	Fungal	0	0	0	0	0	0	0
>=32 wks	Total infants				570	565	661	620
	Early sepsis				2	3	3	3
	Late sepsis				4	5	5	9
	-Bacterial-non CNS				2	6	4	8
	-Coagulase Negative Staph				4	2	3	4
	Fungal				0	0	1	0

Chronic Lung Disease

The criteria used to define chronic lung disease of prematurity, are oxygen dependency or respiratory support e.g. CPAP, at 36 weeks post conceptual age. The previously noted reduction in chronic lung disease has increased slightly in 2005. Comparing 2002-2005 with the previous three year period the incidence of oxygen at 36 weeks for infants ≤ 28 weeks has fallen from 47% to 27%. This coincides with shorter duration of mechanical ventilation, the increased use of CPAP, less sepsis and improved nutrition. Importantly the proportion of babies going home on oxygen has not increased.

Table 11: Chronic lung disease

		1999	2000	2001	2002	2003	2004	2005
<=28 weeks	No. Admitted	40	44	51	54	48	33	38
	O2 at 28 days %	70.9	59	70	50	47	50	62
	O2 at 36/40 %	45	45	50.9	30	16	26.6	35.1
	Home on O2 %	19	22	25	14.8	6.25	16.6	16.2
29-31 weeks	No. Admitted	47	51	47	41	62	41	44
	O2 at 28 days %	14	7.8	12.7	14.6	6.5	17.1	9.1
	O2 at 36/40 %	8	7.8	8.5	9.75	6.5	12.1	4.5
	Home on O2 %	4	0	2	7.3	3.2	4.8	4.5

Conclusion

The highlight of 2005 was undoubtedly the move to the new unit on the 30th March. Once the shelves were fully stocked and the last trolleys arrived, having gone astray in Blenheim, we were able to focus on the benefits of working in a modern environment and providing care for the babies admitted. To have acoustic tiles which dampen the many sounds encountered in the work environment, privacy screens for the families, varied lighting levels for different needs over the day and night and colours that add a feeling of calm to an emotionally charged area are a few of the important improvements we now have. The parents, especially the few who have used our service at both sites, have approved of the environment in which we care for their infants. The additional parent facilities were an important factor the design team worked for. There were many people involved in our achievement but feedback and comments from staff and parents were vital to getting things right from the start.

In 2005 we trialled three different ventilators, over a period of months commencing soon after we moved. By December we had selected one that we believe will meet our needs for the next 10 years. We also reviewed our surfactant use given to babies ventilated with hyaline membrane disease. As a result we have changed brands which involve a more flexible vial choice and reduced cost. Quality improvement is a team effort and I acknowledge the work of the Co-ordinators, Nurse Educator and our Technicians who maintain the high standards of the unit on a daily basis. However without appropriate Nursing staff numbers, we are unable to care for all of our regional babies at times. The transfers out inutero increased in 2005 as a direct result of reduced Nursing FTE, staff turnover and various members of staff in acting roles both within and outside the unit.

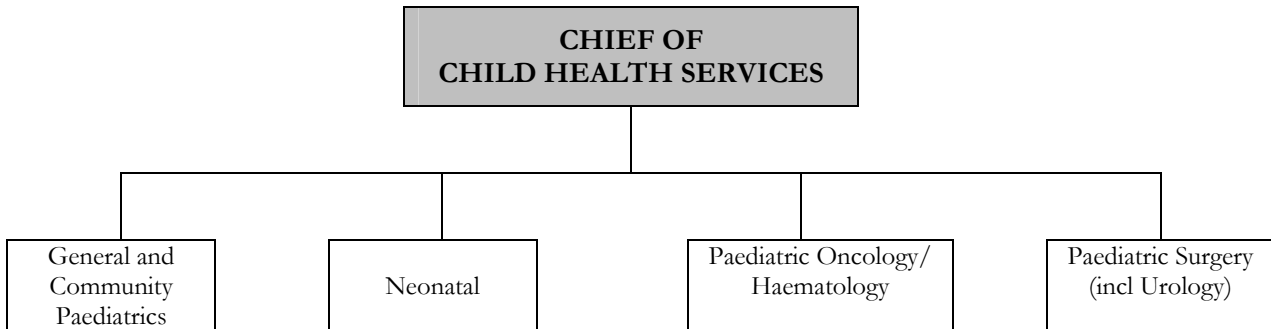
Dr Nicola Austin - Neonatal Clinical Director

CHILD HEALTH SERVICE OVERVIEW

This is the second time that the Child Health Service has been included in this report. Last year, its contribution was very brief and limited in scope, but this year an attempt has been made to better reflect the many varied aspects of the services provided by the Child Health Service.

The administrative structure of the Senior Medical Officers of the Child Health Service is summarised in Figure 1.

Figure 1: Child Health administration structure



Integration of the service has facilitated a cooperative approach for the promotion of services for infants and children, has allowed for better strategic planning, and enabled more rational use of resources.

Increasingly, Christchurch is becoming the second major paediatric centre in New Zealand, after Auckland. Additional demands are being placed on the CDHB to provide tertiary services in Child Health for much of the South Island. The great challenge for our service is to balance these needs against those of our local population.

One of the trends in the Child Health Service has been the shared-care and team approach to the management of sick children. Efforts are being made to improve the communication and interface between primary care with secondary and tertiary care. The important role of all those involved in children's care is being increasingly recognised and considerable effort is being expended to integrate the contribution of the various providers of care. Now, only the sickest children are admitted to hospital. This means that some children who may in previous years have been admitted are now being managed in an outpatient basis or in the community, which further necessitates good communication at all levels.

Senior Medical Officers of the Child Health Service

General Paediatrics Professor George Abbott Dr Alison Daniell Dr Cameron Dickson (Neurology) Dr Clare Doocey Dr Karen MacKenzie (Endocrine/Diabetes) Dr Neil MacKenzie Dr Maud Meates-Dennis Dr Philip Pattemore (Respiratory) Dr Paul Shilitto (Neurology) Dr Catherine Swan Dr James Hector-Taylor (Locum)	Neonatology Paediatric Oncology Paediatric Surgery	Dr Nicola Austin Professor Brian Darlow Dr Jill McKie Dr Glynn Russell Dr Peter Schmidt Dr Rob Corbett Dr Michael Sullivan Professor Spencer Beasley Mr Russell Blakelock Mr Kiki Maoate
--	---	---

Professor Spencer Beasley - Child Health

DEPARTMENT OF PAEDIATRIC MEDICINE REPORT

2005 has proved to be a very busy and eventful year for the Department of Paediatric Medicine. Acute demand for Inpatient and Outpatient services has significantly increased. Three new Senior Medical Officers were appointed, comprising two completely new posts and one replacement for a Consultant who returned to the United Kingdom. 2005 also saw the retirement of Professor George Abbott from his role as Clinical Director of Paediatrics to be replaced at the end of the year by Dr Paul Shillito.

General Paediatrics

2005 has been the second busiest year on record in terms of inpatient acute demand. In the month of November there were over 600 presentations to the Children's Acute Assessment Unit, a remarkable number given that winter was supposed to be well behind us. The increased acute demand placed upon CAA was reflected by an increased number of bed days. By the end of the year there had been on average a 10% increase in the number of bed days across the Paediatric wards. The increase in bed days put considerable strain upon not only the Medical and Nursing staff, but also the Allied Health staff and the team as a whole has worked very well together in order to deal efficiently and effectively with the increased pressure.

Table 1: Bed days analysis 2005

Area	Nov 05 Actual	Nov 04 Actual	05 July-Nov	04 July-Nov
Wd22	490	377	2639	2333
Wd21	436	387	2094	2048
Total	926	764	4733	4381

The increased demand for acute general paediatric services is largely attributable to an increased admission rate for children with complex medical problems. The admission rate for children with the common paediatric infections of gastroenteritis and bronchiolitis was actually below the level that we would generally expect. This is a trend that we will need to watch very carefully. Children with complex medical needs, generally have a longer length of stay than those with acute infections and so not only is it a concern that more complex children are being admitted, but it is also a concern that those children require more complex and more prolonged treatment.

During the course of the year the Public Health Nurses celebrated the end of the MeNZB Campaign. They were able to vaccinate 96% of all the pupils that were consented for vaccination. In the six months to November 2005 there had been no cases of Meningococcal B Disease admitted to the Paediatric wards. This can only be a testament to the effectiveness of the MeNZB Programme.

2005 also saw an increased number of outpatient clinics held within the Paediatric Department. This was matched by a drop in the new patient (FSA) waiting time – a trend that has continued since 2004. In January 2005, 450 children were waiting for 6 months or less to see a Paediatrician. By December 2005 this had fallen to 350. The Department continued to develop specialist paediatric services, a trend that will continue into the future with the appointment in 2005 of a new Paediatric Endocrinologist and a new Paediatric Neurologist.

During the course of 2005 three new Senior Medical staff were appointed to the Department. Karen MacKenzie was appointed as a Paediatric Endocrinologist and Cameron Dickson as a Paediatric Neurologist. The impact that these two staff members will make upon the Department is documented in paragraphs below.

Dr Clare Doocey was also appointed to take over the role left when Dr Russell Austin returned to the United Kingdom. Clare was appointed as a General Paediatrician with expertise in Child Protection. She will be working very closely with Sue Miles and Karen Harrison from the Child Protection Services in order to develop and enhance the service we provide within the Canterbury region. This is quite a major undertaking involving widespread liaison. It will require a detailed look at how we manage Child Protection issues within the Hospital environment, an issue that was brought to the fore by Dr Cindy Kiro (Director of Child, Youth and Family Service) report into Safety of Children in Hospital.

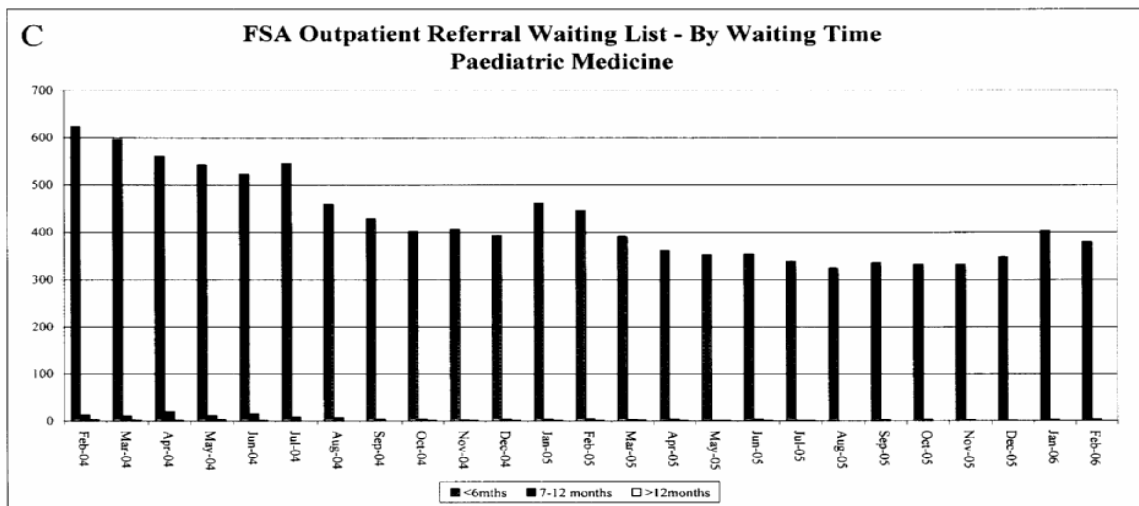
The end of 2005 saw Professor George Abbott step down from his role as Clinical Director of Paediatrics. He had been in this role for the preceding five years. The role of guiding the Department over the next few years is undoubtedly challenging, but at the same time rewarding.

Neurology Services

Since the arrival in 1995 of Dr Paul Shillito as Paediatric Neurologist this service has expanded to provide Outreach Neurological Services to children throughout the South Island. There is widespread recognition that Neurology Services should be provided nationwide in a coordinated fashion and that children in provincial centres should have the same access to these specialist services as children in the major centres. To this end, in 2005 Canterbury District Health Board agreed to appoint a second Paediatric Neurologist. Cameron Dickson, an ex-Senior Registrar in Christchurch, was recruited from Sydney Children's Hospital to take on this role. The two Neurologists now provide a Paediatric Neurology Service from Invercargill to Palmerston North with a plan over the next year or two to increase Outreach Services to provide in excess of 80 Outreach Clinics per year. A significant component of the workload is the provision of telephone advice to Paediatricians throughout the South Island and lower part of the North Island.

Together with Dawn Anderson, the Paediatric Epilepsy Nurse, the two Neurologists provide an ambulatory and video EEG service utilising the purpose built Clinical Investigation room on Ward 22. One in 200 children develop epilepsy with double or triple that number having episodes of collapse from various causes. Worldwide misdiagnosis rates have been reported to be as high as 30%. The long term EEG monitoring service is an essential tool to accurately diagnose these conditions. It is anticipated that we will ultimately be able to monitor 20-30 children per year, a process that often results in admission to the Paediatric ward for between two and five days for each child. The process enables us to not only ensure that we correctly diagnose children, but also enables us to provide the initial investigations that often lead to epilepsy surgery for children with intractable epilepsy.

Figure 1: FSA outpatient referral waiting list by waiting time Paediatric Medicine



Month	<6mths	7-12 months	>12months
Feb-04	620	10	10
Mar-04	600	10	10
Apr-04	560	10	10
May-04	540	10	10
Jun-04	520	10	10
Jul-04	540	10	10
Aug-04	460	10	10
Sep-04	430	10	10
Oct-04	400	10	10
Nov-04	400	10	10
Dec-04	390	10	10
Jan-05	460	10	10
Feb-05	440	10	10
Mar-05	390	10	10
Apr-05	360	10	10
May-05	350	10	10
Jun-05	350	10	10
Jul-05	340	10	10
Aug-05	330	10	10
Sep-05	340	10	10
Oct-05	330	10	10
Nov-05	330	10	10
Dec-05	350	10	10
Jan-06	400	10	10
Feb-06	380	10	10

Prepared by Megan Gribbitts
Decision Support

Waiting includes all Purchasers

C:\com\megan\graph\outpatient\graph\Medical FSA graphs.xls Paed Med Graph
7/3/2006 11:56

Community, Development and Behavioural Paediatrics

The Ministry of Health have signalled a desire to see more community based service and for that service to focus on health promotion and illness prevention. Much of this work is to be performed by primary care providers, however the Paediatric Department has a significant role to play. We have the skills and knowledge to help design effective health promotion and illness prevention programs for our children. Dr Maud Meates-Dennis, Senior Lecturer in Paediatrics, has been actively involved in Population Child Health. This includes health promotion, screening and surveillance, and injury and illness prevention. We look forward to working closely with our colleagues in primary care. Before leaving this topic we should not forget that some secondary and even tertiary paediatric care can and should be provided in the community. Paediatric palliative care would be the perfect example of this principle.

On another note we recognise that the impact of Neurological disability is increasing and looks set to continue to increase in the foreseeable future. We are working hard to address this and to provide the best service possible. Unfortunately within the Canterbury region, Disability Services remain somewhat fragmented with five Early Intervention Providers and no unified Child Disability Assessment Service. A major step forward has been the development of the Early Intervention Co-ordination Service (EICS). This service is designed to streamline the process of getting children enrolled in Early Intervention when disability is identified. The EICS was a collaborative effort between all the Early Intervention Providers, medical and administrative staff, and we look forward to further enhancing this process.

Looking Forward to 2006

The Department is certainly undergoing some change with the arrival of new staff. It is going to be appropriate to look at our service provision and the community's needs for the future, so that we are sure that we are providing the services that are required. We will be developing a long-term plan for the Department of Paediatric Medicine, which will be the framework that will allow us to move forward in a well co-ordinated and efficient manner. Three challenges stand out:

1. How are we going to cope with the demand for more inpatient and outpatient care?
2. How can we better work with our primary care colleagues?
3. How can we improve the service to adolescents and how do we streamline the transition of care from paediatric to adult services?

These are big challenges but the prize at the end is worth the hard work.

Dr Paul Shillito - Clinical Director Paediatrics

PAEDIATRIC ENDOCRINOLOGY AND DIABETES REPORT

Christchurch Hospital has just appointed a Paediatric Endocrinologist. The aim of this position is to provide integrated Paediatric service for the children of Canterbury. The key objectives of this position involve the development of the Diabetes Service for children in Canterbury and provision of Paediatric Endocrine Outpatient Clinics.

Diabetes Service

Christchurch Paediatric Department currently sees all children with diabetes aged 0-13 years. There are 120 children in Christchurch with type 1 diabetes. Along with Dr Karen MacKenzie, the new Paediatric Endocrinologist, Professor Brian Darlow and Dr Jill McKie continue to provide very valued support to these clinics.

There are two Paediatric Diabetes Specialist Nurses; Neil Owens and Trudy Brown who provide excellent daily support to these children as well as in-depth initial education, ongoing education programs and superb school holiday programs and diabetes camps.

Recently, Hayley Blair has joined the team as the Paediatric Dietician. She is being well supported by Vicki Clarke who had previously provided nutrition advice for the families of children with type 1 diabetes. We are fortunate also to have Katrina Falconer as the Child Psychology support in our Diabetes clinics.

There are nine children with insulin pumps in Christchurch, which at present are fully privately funded.

In Paediatrics, clinic space and access to resources continue to be a limitation for the Diabetes Service. There is limited ability to develop the use of new technologies such as CGMS, continuous glucose monitoring systems, and new insulin in our clinics as well as a limited ability to provide support of insulin pump therapy in Christchurch.

Currently adolescent children are cared for at the Diabetes Centre by a team of Adult Diabetologists, Diabetes Specialist Nurses and Dieticians. There are 300+ adolescents receiving their diabetes care through the Diabetes Centre. A new Diabetes Centre in Hagley Avenue, with fantastic facilities is due to be opened in October 2006. These facilities will create a wonderful opportunity for Diabetes care in Christchurch for both children and adults. Space will exist to hold shared adolescent clinics this will provide an excellent transition into adult services for our teenagers with diabetes. There has been wonderful support from adult diabetes team of the new Paediatric Endocrinologist and this is an exceptional opportunity to work with the adult team, caring for our adolescent children.

The practice of transferring children at 13 years to the Adult Diabetes Service has meant children aged 13-15 years admitted to hospital have been previously admitted to the Paediatric Ward and cared for by adult services. The new Paediatric Endocrinologist will provide continuity for our adolescents caring for them both as inpatients and outpatients.

Children with Cystic Fibrosis are being increasingly diagnosed with Cystic Fibrosis Related Diabetes. These children have diabetes with needs very different from other children with diabetes and are cared for by the Diabetes Team in conjunction with the Respiratory Team. Children with childhood cancers are another group of children that may develop treatment related diabetes and are becoming increasingly recognised. These children also require the specialist input of the Diabetes Team.

Paediatric Endocrinology

Paediatric Endocrinology in Christchurch had for many years been provided by Professor George Abbott, in conjunction with Professor Eric Espiner and more recently Dr Penny Hunt. Professor Abbott had encouraged and supported Dr Karen MacKenzie in her training in Paediatric Endocrinology and prior to his departure from the department had handed over his Paediatric Endocrinology clinics.

Paediatric Endocrinology clinics are held monthly combined with the Adult Endocrinologists. Working with Dr Penny Hunt, who is a tremendous asset to these clinics, it is great to be able to continue the tradition established by Professor Abbott, of working with Adult Endocrinologists providing excellent complete care of our children and adolescents with Endocrine disorders.

Recently a small weekly session in Paediatric Endocrinology has been opened to see additional children on a weekly basis.

Nursing support to these clinics is provided by Bev Johnson. She has an in-depth understanding of the children and the Endocrine clinic. An important part of the Endocrinology service provided by Bev, is the coordination and collection of data required by the New Zealand Growth Hormone Committee for children on Growth Hormone in the Canterbury and West Coast regions. She provides the initial education and excellent ongoing support for children and their families. Bev also coordinates Paediatric Endocrine testing which is often extremely involved and requires high level of expertise and experience.

Again, limited clinic space and current resources restrict the provision of complete Paediatric Endocrine services.

Oncology Long Term Effects Clinic

Dr Michael Sullivan and Dr Rob Corbett have developed a new late effects clinic (the LEAP clinic) for survivors of childhood malignancies. Dr Karen MacKenzie will work as part of this team in providing assessment, investigation and management of these children with late endocrine effects of oncology treatment.

Dr Karen MacKenzie - Paediatrics Endocrinologist

PAEDIATRIC SURGERY REPORT

The first specialist Paediatric Surgeon was appointed to Christchurch Hospital in September 1996. Since then, the service has expanded such, that it now provides virtually all the Paediatric Surgical services to the seven public hospitals of the South Island.

There are now three consultant Paediatric Surgeons in the South Island, all based in Christchurch. Additional input is provided by a Urologist who also has an interest in Paediatric Urology (which, in conjunction with the two Paediatric Surgeons who perform urology, means that three are involved in this aspect of the service), as well as a number of adult General Surgeons who assist, particularly with adolescents. Virtually all the neonates and major index cases receive their treatment at Christchurch Hospital (or in the case of neonates, in the new Christchurch Women's Hospital, which is now on site). The three Paediatric Surgeons provide regular Outreach services to the regional hospitals; these involve Clinics and Day Surgery.

The advantage of this service for children from the more remote areas is that they have access to specialist Paediatric Surgical opinion and advice in a convenient location, and where they require minor surgery, this can be done relatively close to home. This minimises the disruption to the families.

Case Weight Discharge Volumes

In the early years of the service, the volume of surgery performed increased significantly each year, but in the last four or five years has reached a plateau, although ward closures, decreased access to theatres and cancelled lists have resulted in a slight reduction in the total case weight discharge volumes in the last two years.

Tables two and three compare the numbers of first surgical assessment and follow up appointments in the Outpatients Clinics for the last four years.

Table 1: Total case weight discharge volumes in Paediatric Surgery

Year Ended	Total
30 th June 2004	942.96
30 th June 2005	886.87

Table 2: Paediatric Surgery first attendance

Fiscal Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	YTD
2002/03	46	50	65	34	47	36	40	40	63	69	48	78	616
2003/04	69	56	59	35	27	33	19	29	53	52	41	44	517
2004/05	74	38	32	49	31	48	27	60	70	38	53	20	540
2005/06	43	59	63	49	52	40	20	43	64	31	44	0	508

Table 3: Paediatric Surgery subsequent attendance

Fiscal Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	YTD
2002/03	125	114	124	127	127	93	73	107	142	111	127	121	1391
2003/04	126	123	147	142	145	99	59	96	160	117	103	78	1395
2004/05	129	166	124	111	152	102	52	143	92	105	145	108	1429
2005/06	76	126	114	126	137	112	76	92	136	100	146	0	1241

Pacific Island Services

Two of the Paediatric Surgeons have a significant commitment to the provision of Paediatric Surgical services to the countries of the South Pacific. Both have strong family connections to the Pacific and have been actively involved not only in improving paediatric surgical services in the South Pacific (including recently, training a Fijian Surgeon in Paediatric Surgery), but also in the development of Child Health Services generally. They have been supported throughout by the CDHB.

Specialist Surgical Training

The Department of Paediatric Surgery, Christchurch Hospital, has been inspected by the Board of Paediatric Surgery, Royal Australasian College of Surgeons, and is now a recognised accredited training post for Specialist Surgical Training in Paediatric Surgery. The position has proved highly popular amongst trainees such that positions have been filled to the end of 2011. The only other accredited training post in New Zealand is Starship Children's Hospital, Auckland. Currently, there are five trainees in paediatric surgery from New Zealand of a total of 20 in Australasia.

Clinical Indicators in Paediatric Surgery

Clinical Indicators in Paediatric Surgery were initially developed by the Australian Council of Healthcare Standards in conjunction with the Royal Australasian College of Surgeons and for the last five or six years have been used routinely by the Australasian Association of Paediatric Surgeons and the RACS Board of Paediatric Surgery. They are measures of outcome in paediatric surgery, and provide one mechanism by which the outcomes achieved by an institution can be benchmarked. Also, it may help a Paediatric Surgical department identify where it has problems in the management of the conditions described by the Clinical Indicators.

Clinical Indicator in Paediatric Surgery are:

Indicator Topic:	Repair of Oesophageal Atresia with Distal Tracheo-Oesophageal Fistula (TOF)
Rationale:	Oesophageal atresia with TOF is an index condition requiring a high degree of expertise in Paediatric Surgery
Definition of Terms:	Repair includes both primary and staged repair by oesophago-oesophagostomy. Anastomotic breakdown/fistula refers to those lesions which are clinically evident, and excludes radiological evidence alone
Type of Indicator	This is a comparative rate base indicator addressing the early outcome of patient care.
INDICATOR DATA FORMAT:	
CI No 1.1 - Numerator	The number of patients having an anastomotic breakdown/fistula following repair of oesophageal atresia with distal TOF during the study period.
CI No 1.1 - Denominator	The total number of patients having repair of oesophageal atresia with distal TOF during the study period.
Indicator Topic:	Pyloromyotomy For Pyloric Stenosis
Rationale:	Skilful surgery should avoid mucosal perforation, which may give rise to other complications such as peritonitis, need for repeat surgery, etc.
Definition of Terms:	This indicator focuses on patients having pyloromyotomy for hypertrophic pyloric stenosis only.
Type of Indicator	This is a comparative rate based indicator addressing the outcome of patient care.
INDICATOR DATA FORMAT:	
CI No 1.2 – Numerator	The number of pyloromyotomies in which mucosal perforation is detected at the time of operation or subsequently becomes apparent during the time period under study.
CI No 1.2 – Denominator	The total number of patients having pyloromyotomy performed during the time period under study.

Indicator Topic:	Surgery For Suspected Appendicitis In Childhood
Rationale:	Appendicectomy is a commonly performed operation in childhood. Good management should achieve a low rate of negative (normal) histology. Most children with non-perforated appendicitis are discharged within days from surgery. Prolonged post-operative stay indicates the occurrence of post-operative complications e.g. wound infection, prolonged ileus, pneumonia etc.
Definition of Terms:	Children refers to patients less than 15 years of age. Acute appendicitis excludes perforated appendicitis, appendicular abscess, interval and incidental appendicectomy. Significant other intra-abdominal pathology includes Meckel's diverticulitis, torsion of an ovarian cyst etc. but excludes mesenteric lymphadenitis. Post-operative stay should be related to the operative procedure and its complications. Prolonged stay for social reasons e.g. single parent situation, patients from rural areas awaiting transport etc. should be excluded.
Type of Indicator:	These are comparative rate based indicators addressing the outcome of patient care.
Indicator Data Format:	
CI No 1.3 – Numerator	The number of patients with a pre-operative diagnosis of acute appendicitis who undergo appendicectomy and found to have a normal appendix documented histologically during the time period under study.
CI No 1.3 – Denominator	The total number of patients with a pre-operative diagnosis of acute appendicitis who undergo appendicectomy during the time period under study.
Indicator Topic:	Surgery For Suspected Appendicitis In Childhood
CI No 1.4 – Numerator	The number of patients with a pre-operative diagnosis of acute appendicitis who undergo appendicectomy with normal appendicular histology but had significant other intra-abdominal pathology during the time period under study.
CI No 1.4 – Denominator	The total number of patients with a pre-operative diagnosis of acute appendicitis who undergo appendicectomy during the time period under study.
CI No 1.5 – Numerator	The number of patients who have undergone appendicectomy, without appendicular abscess or perforation, who have a post-operative length of hospital stay of greater than five days
CI No 1.5 – Denominator	The number of patients who have undergone appendicectomy, without appendicular abscess or perforation, during the time period under study.
Indicator Topic:	Intussusception
Rationale:	Intussusception is a common paediatric surgical emergency for which good management involves a low operative rate, high enema reduction rate and low intestinal resection rate.
Definition of Terms:	Successful non-operative reduction applies to single or multiple attempts at reduction without surgical intervention. Patients diagnosed to have spontaneous reduction of intussusception should be excluded.
Type of Indicator:	These are comparative rate based indicators addressing the outcome of patient care.
Indicator Data Format	
CI No 1.6 – Numerator	The number of patients with intussusception diagnosed on contrast enema or ultrasonography in whom non-operative reduction was successful during the time period under study.
CI No 1.6 - Denominator	The total number of patients with intussusception diagnosed on contrast enema or ultrasonography during the time period under study.
CI No 1.7 - Numerator	The number of patients with intussusception undergoing surgery, with or without a prior attempt at contrast enema reduction, during the time period under study.
CI No 1.7 - Denominator	The total number of patients with intussusception treated during the time period under study.

Table 4: Clinical indicator data – Paediatric Surgery 2005

Repair of oesophageal atresia with distal tracheo-oesophageal fistula (TOF)	Total	Surgery for suspected appendicitis in childhood	Total
CI No: 1.1 Numerator	0	CI No: 1.3 Numerator	29
		Denominator	108
		CI No: 1.4 Numerator	6
Denominator	4	Denominator	108
		CI No: 1.5 Numerator	2
		Denominator	93
Pyloromyotomy for pyloric stenosis	Total	Intussusception	Total
CI No: 1.2 Numerator	0	CI No: 1.6 Numerator	10
		Denominator	10
Denominator	7	CI No: 1.7 Numerator	1
		Denominator	11

Please refer to accompanying document for explanations of each component on this form

Table 4 summarises the Clinical Indicator data for Paediatric Surgery in Christchurch Hospital for 2005. Shortly, the AAPS is planning to review all the institutional Clinical Indicator data which will allow us to benchmark ourselves against other comparable paediatric surgical institutions.

Providing speciality-specific Clinical Indicator data is one of the requirements of an RACS accredited training post in Paediatric Surgery in Australasia. In New Zealand there are only two such training posts, Christchurch and Auckland, although Waikato Hospital and Wellington Hospital (the other two tertiary Paediatric Surgical Centres in New Zealand) also provide Clinical Indicator data.

Table 5: Trends in the number of clinic patients seen during outreach visits

Total Clinic Patients	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05
Blenheim	0	0	0	20	80	94	113	97	104
Dunedin	40	120	172	250	302	337	311	290	250
Greymouth	20	60	110	178	181	249	252	173	237
Invercargill	30	100	261	258	283	345	382	339	382
Nelson	0	0	13	60	68	67	58	63	64
Timaru	0	16	31	28	47	67	70	74	148
Total	90	296	587	794	961	1159	1186	1036	1185

Table 6: Trends in the number of surgical procedures performed during outreach visits

Total Surgery Patients	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05
Blenheim	0	0	0	0	12	13	12	16	16
Dunedin	0	0	48	53	74	61	50	59	52
Greymouth	0	0	17	18	25	40	46	43	35
Invercargill	0	0	42	45	51	56	68	51	77
Nelson	0	0	0	6	22	17	14	13	18
Timaru	0	0	0	0	0	0	0	11	32
Total	50	75	107	122	184	187	190	193	230

The Paediatric Surgical Outreach Service to the South Island

The Department of Paediatric Surgery now provides a comprehensive and regular Outreach service to all the public hospitals in the South Island. Figures 1 and 2 show the overall trends for the numbers of clinic patients seen and surgical procedures performed as part of the outreach service. Tables 5 and 6 summarise the numbers seen in each centre on an annual basis.

Figure 1: Total patients seen in outpatient clinics each year as part of the regional service

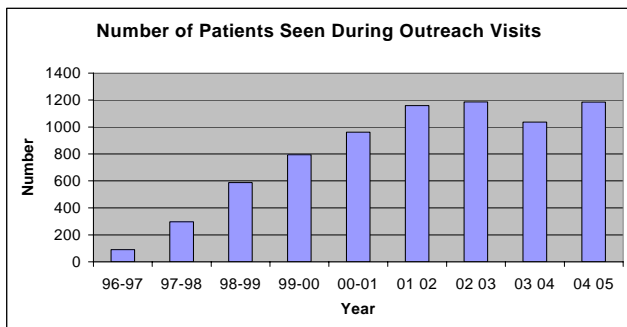
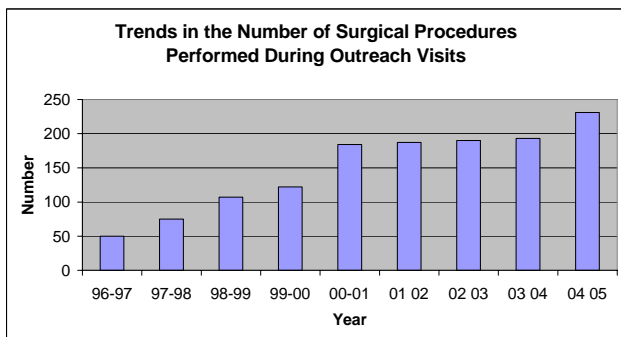


Figure 2: Total patients undergoing surgical procedures each year as part of the outreach service



Professor Spencer Beasley - Professor of Paediatric Surgery

PAEDIATRIC ONCOLOGY / HAEMATOLOGY (SOUTH ISLAND CHILD CANCER SERVICE) REPORT

Trends

- Acuity of care high related to complicated bone marrow transplantation procedures
- Bed days increased by 16% compared with preceding year
- Increasing nursing turnover with difficulty experienced in recruiting replacements
- Increased number of adolescents (15-18 years of age) referred to our service from within CDHB
- Dramatic increase in palliative care workload over first half of 2006, exerting considerable pressure on the Children's Outreach Nursing Service
- Most expensive component of our work is haemophilia. Centralisation of purchasing in New Zealand at lower unit cost for anti-haemophilic factor should reduce cost. Also, participation in a fully-funded clinical trial (collaboration with Mark Smith, Haematology) has led to substantial albeit transient savings
- Increased activity in the Children's Haematology Oncology Centre has led to overcrowding with frequent "outliers" on the general paediatric wards.

Developments

Late Effects Assessment Project (LEAP): National leader - Dr Michael Sullivan)

Funded for 3 years by the MoH through the Cancer Control Strategy, LEAP is designed to coordinate the detection, surveillance and intervention related to the side effects of anti-cancer therapy given to survivors of childhood cancer. This service is now up and running in the South Island coordinated by Belynda Wynn with support from Glen Richardson, Clinical Psychologist.

Home to Hospital Videoconferencing – Palliative Care

Most children with chronic disease die at home; equity of access to high-quality palliative care is challenged when children live in rural areas. The Child Cancer Foundation has purchased equipment enabling families and local community caregivers to access specialist palliative care advice from Christchurch Hospital. Successful "shared" palliative care has been delivered in this manner to children dying on the West Coast, rural Otago and Southland.

Clinical Trials

In the past year, our service has commenced participation in demanding clinical trials run by the US Children's Oncology Group. Trial entry now approaches 25%, falling short of our target of 60-80%. This is due to over 20 international clinical trials submissions being rejected by the Multi-Regional Ethics Committee (MREC) because of ethical concerns regarding tissue banking overseas. Hopefully this will be resolved by year-end.

Career Pathways for Nurses

A web-based course on Cancer in Adolescents and Young Adults led by Coventry University (UK) will commence February 2007. Jan Millar, CCN of our Children's Haematology Oncology Centre has participated in the development of this course. In addition, two graduate level Paediatric Oncology papers are now being offered by CPIT. Such developments pave the way for Nurse Practitioner roles within the South Island Child Cancer Service.

Challenges

Adolescents: currently funding does not follow patient flow into Paediatric Services although tier 1 and 2 Service Specifications acknowledge such trends in care. Service Specifications for Adolescent and Young Adult Cancer are currently in development and should become operational during 2007 (national lead – Dr Rob Corbett). These specifications describe clinical pathways for patients aged 12 – 24 years with care coordinated by Key Workers operating within defined multi-disciplinary teams. Following the implementation of these service specifications, the challenge will be directed towards the care of adolescents with non-malignant conditions.

Pacific Islands: currently, a minority of patients from Fiji, Tonga and Samoa are funded to receive very expensive “first world” anti-cancer treatments in New Zealand. Over 2006-2008, a NZ Aid-funded project will help develop sustainable child/adolescent cancer services in the Pacific Islands (under the auspices of the national Paediatric Oncology Steering Group – leader Dr Rob Corbett).

Children’s Outreach Nursing Service: this service provides home-based care for children with complex needs thereby reducing the need to hospital admission. Pressure on this service exerted by an exceptional demand for palliative care has led to fragmentation. Solutions involving cooperation with our community-based colleagues must be sought, whilst guaranteeing a high level of specialist input.

Facilities: the Children’s Haematology Oncology Centre is too small and cramped to safely provide highly specialised care whilst attempting to guarantee confidentiality in our discussions on the unit. The issue of new, purpose-built facilities must be addressed.

Dr Rob Corbett - Clinical Director Paediatric Oncology / Haematology

A LATE EFFECTS ASSESSMENT PROGRAMME (LEAP) FOR CHILDREN AND ADOLESCENTS WITH CANCER REPORT

The long-term follow up of children and adolescents treated for cancer is a continuous process with many “transitions”. The first priority at the end of treatment is active surveillance for possible disease recurrence, but with time the focus of follow up evolves towards assessing the delayed medical and psychological effects of cancer treatment. With over 80% of young people surviving cancer, about 1:900 young people between 15 to 34 years of age is a cancer survivor. As these young people transition into adulthood many will have chronic treatment related conditions needing long-term care; they will also need to develop an understanding of their condition and their long-term health risks.

In recognising the need to continue comprehensive care “beyond a cure”, the National Paediatric Oncology Steering Group established in 2003, a dedicated Long Term Effects and Survivorship work stream, to develop a national strategy for the evaluation and care of all children and adolescents who have completed active cancer therapy. In late 2005, with the joint the support of the Cancer Control Council, the Child Cancer Foundation, and CanTeen, the Ministry of Health approved funding of \$1.5m to establish the programme in Auckland, Wellington and Christchurch. We were delighted to have the programme formally launched by Mr Pete Hodgson at Parliament in June 2006.

The specific objectives of the programme are:

- Implementation of dedicated Late Effects Assessment Clinics
- A uniform evidence based clinical approach, employing guidelines and recommendations for follow-up from the UK Children’s Cancer Group and the US Children’s Oncology Group
- Standardised end of treatment summaries documenting all medical and neuropsychological effects of treatment
- Implement protocols for ongoing assessment and follow-up in regional centres by shared care paediatricians, adult speciality services and primary care providers
- Develop a protocol for neuropsychological, social and educational assessment
- Develop and implement a Health Passport, in anticipation of future access to both primary and specialist health services
- Implement a patient education programme incorporating age appropriate “self care”
- Develop a clinical Late Effects database for outreach services, research and audit.

We have now established formal LEAP clinics here in Christchurch, and have appointed Belynda Wynn, as our LEAP clinical nurse specialist. Dr Glenn Richardson was recently appointed as our LEAP neuropsychologist and we now working on completing a national LEAP database.

Dr Michael Sullivan - Paediatric Oncologist, Children's Haematology Oncology Centre Chairman

TELEMEDICINE REPORT

HOSPITAL TO HOME PALLIATIVE CARE FOR CHILDREN

Winner

Computerworld Excellence Award for IT in Health 2006

The Children's Haematology Oncology Service was thrilled to be part of the winning entry in the Computerworld Excellence in Health award announced at a black tie dinner on July 21 2006. Working with the New Zealand TelePaediatric Service (Chaired by Dr Sullivan) the team at CHOC (Dr Rob Corbett, Jan Miller and Nikki Scott and the Palliative Care Liaison Team), developed a unique service to assist the palliative care of children in remote and rural areas. Using the NZTPS national network, we have been able to support several families in rural regions by installing videoconference equipment into the family home with a direct connection back to CHOC. We have had regular videoconferences to support the family and assist the local Medical and Nursing Team provide specialist care, relieving distress, managing symptoms and keeping the child out of hospital in their own home.

This service, which has been supported by the Child Cancer Foundation, has now been extended to the Starship Children's Hospital.

The National Telemedicine Network developed by TelePaeds, currently supports Clinical Consultations and Medical and Nursing education around the country. Over the next 12 months it is planned the network will assist in the support of continuing professional development for Medical, Nursing and Midwifery.

Dr Michael Sullivan - Chairman NZTPS and Paediatric Oncologist, CWH, CDHB

CHILD HEALTH NURSING

The Child Health Nursing and Community Allied Health cluster consists of 10 cost centres, located at Christchurch and Burwood Hospitals.

Christchurch Hospital Services include four inpatient areas: Ward 21 is predominantly a surgical ward which also provides tertiary services for children with burns, complex surgical conditions and Cystic Fibrosis, Ward 22 takes medical admissions up to the age of 15 years, surgical admissions under 1 year and has a seven bed Paediatric High Dependency Unit.

The Children's Haematological and Oncology Centre (CHOC) is the South Island tertiary centre for Oncology and Haematology Inpatients and Outpatients and the Children's Acute Assessment Unit (CAAU) is the assessment area for all medical acute admissions and some surgical ones.

Paediatric Outpatients see approximately 13,000 children a year. It has five day beds which are utilised for investigations and uniquely it offers a morning GA list once a week. This allows CHOC patients and outpatients to have procedures undertaken without having to utilise main operating theatres.

Playroom (refer to separate report).

Children's Outreach Nurses provide a nursing service to children with complex health needs who are under the care of a Paediatrician.

Clinical Nurse Educators (refer to separate report).

Burwood Hospital

The Community Services Manager leads three community services (refer to separate report).

Christchurch Hospital Services

The philosophy of care delivery through out the cluster is child centred and family supportive. Emphasis is placed on supporting families to manage their child's illness or accident and where possible for families to return home as quickly as possible. Reflecting this philosophy over 60% of children are assessed, treated and discharged on the same day they are seen in CAAU.

Many children are managed through the Day Surgery Unit and those requiring more complex surgical care are admitted on the day of surgery.

Length of stay is on average 1.6 days and is assisted by initiatives like utilising CPAP for babies with severe bronchiolitis, which resulted in a reduction of 10 days LOS to 3 days.

Patient volumes have been significant in 2005 for CHOC, Ward 22 and CAA with staff reporting higher patients with higher acuity, a trend reflected throughout Christchurch Hospital.

Table 1: Bed days for Ward 21, 22 and CHOC and patient numbers for CAA

Year	Ward 21	Ward 22	CHOC	CAA
2005	4419	5491	1713	7113
2004	5174	3631	1619	6657
2003	4081	5780	1737	6605
2002	4141	6211	1576	7245
2001	5601	6377	1192	7272
2000	6471	7296	Not open	6833

The PHDU is utilised for the children and young people requiring close monitoring and treatment from throughout the inpatient areas, the exception being CHOC patients who require HEPA filtered rooms. With the facilities upgrade in 2004, additional side rooms were commissioned in the PHDU and Ward 22 to reflect a growing need for improved privacy and to manage children with infectious diseases. This year saw a shift in care delivery for children with a suspected spinal injury. Previously, they were admitted to the Adult Trauma Unit in Ward 19. Now they are cared for in the PHDU with input from specialist spinal injury nurses.

Table 2: Paediatric High Dependency Unit - total Nursing hours

	Total hours HDU open	Hours Second Nurse in HDU	Hours Third Nurse in HDU	Hours Fourth Nurse in HDU	Specials in Wd 22	TOTAL
05/06	8245	4980	1375	86	1072	15758
04/05	8453	5735	787	42	448	15490
03/04 Total	8256	5102	1214	42	488	15102
02/03 Total	6403	3537.6	298.5	0	1143.3	11382.4
01/02 Total	7741	2024.5	6	0	1408	11179
00/01 Total	7876	Data not collected				
99/01 Total	7479					

Postgraduate Education

There is an ongoing commitment to education. The cluster has four nurses who have completed their Masters papers and seven undertaking Masters level papers with others completing post grad studies related to the care of children and young people.

Two are undertaking Masters studies involved in interesting topics.

Rachel Geddes is writing her Masters dissertation on the Role of the Nurse Practitioner in the Acute Care setting.

Tracey Bruce is completing a clinical research project comparing outcomes for babies with severe bronchiolitis, some of who receive CPAP and chloral hydrate with those who receive high flow oxygen and chloral hydrate.

Child Health Nursing Representation

There has been nursing representation on International, National and Hospital groups. e.g. Australian Children's Haematological and Oncology group, Nurses for Children and Young People, Board Member of NZ CF Association, Paediatric Society of NZ, Clinical Advisory Group for Nursing Council, Professional Conduct Committee for Nursing Council, and Canterbury Child and Youth Mortality group.

Anne Feld - Child Health Nurse Director

CLINICAL NURSE EDUCATORS CHILD HEALTH CLUSTER REPORT

Nurse education within the Child Health Cluster is facilitated by three part-time (1.2 FTE) Clinical Nurse Educators. The Child Health Cluster has a strong education focus and we are committed to ensuring that knowledge fundamental to child and family care is well planned and accessible. Pivotal to this, Clinical Charge Nurses and Senior Nurses provide expertise in the delivery of ward-based teaching, preceptorship programmes and CDHB competency requirements. In addition the support of Allied staff within Child Health ensure that other legislative standards are met, e.g. Child Protection Training. The multi-speciality nature of Child Health presents a challenge when planning education that will be utilised and meet the needs of all Nursing staff. Over the past year we have responded to this challenge in some innovative ways. These include:

- Generic Orientation Programme Child Health Nursing
- Making Practice Focused Research Happen Conference
- Development of Restraint Minimisation Package for Child Health
- Study days and Workshops
- Webpage and Newsletter.

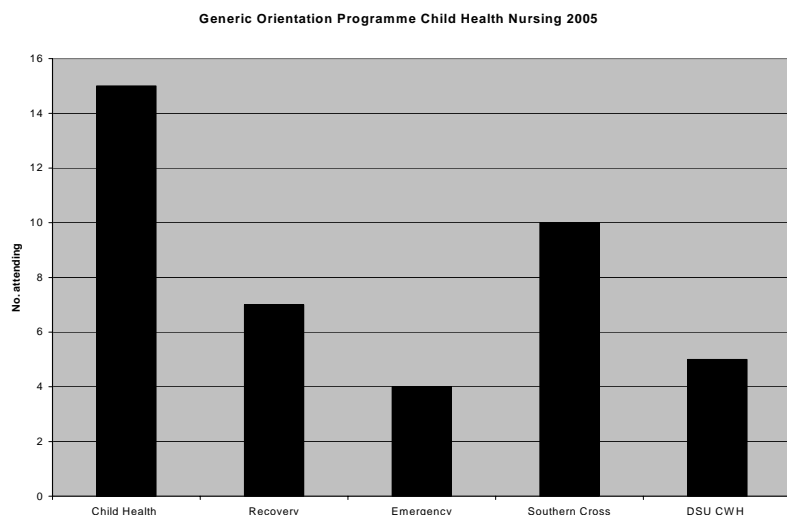
Generic Orientation Programme Child Health Nursing

This programme was piloted in September 2004 and during 2005 was run in February, May and September. The aim of the Generic Orientation Programme is to ensure that Nurses new or returning to the Child Health Cluster have appropriate education and/or updating in the generic aspects of child health nursing e.g. anatomical and physiological differences, fluid and electrolyte management, administration of medication, pain management, family-centred care and recognition of the seriously ill child. Modular delivery of the programme fosters the concepts of adult learning. In the final module each participant prepares a case/clinical presentation. This gives them the opportunity to consolidate learning from the previous modules and to critically reflect on their past and current clinical experiences. The Health and Disability Sector Standards (Children & Young People) 2004, were considered during programme development and the impact on service outcomes where children are cared for in non-designated children's areas e.g. Recovery, ED, DSU. As a consequence Nurses from these areas are offered access to the programme. Managers and Nurses from these areas have been strong supporters and advocates of the merits of the programme.

Making Practice-Focused Research Happen Conference

In March 2005 we were fortunate to have Professor Philip Darbyshire present a daylong conference. Participants were introduced to practical and achievable ways in which practice-focused, collaborative research can be initiated and developed within everyday busy clinical practice in ways that are interdisciplinary, participatory and collaborative. Conference participants came from a variety of practice areas (nursing, social work, physiotherapy, occupational therapy & medicine) and regions (Canterbury, Wellington, Waikato and Auckland). Seventy-five staff registered on the day. From the evaluations it was clear that the conference was a success. Most participants 68% rated the conference as excellent and 61% rated the relevance of information to their clinical practice as excellent. Following this conference, a Child Health Research Group was convened led by Tracey Bruce (Senior Staff Ward 22). This multidisciplinary group now meets on a regular basis and there are several practice-based projects already in progress.

Figure 1: Generic orientation programme Child Health Nursing 2005



Development of Restraint Minimisation Package for Child Health

In recognition of the unique issues that arise for children who enter our service for treatment, a Restraint Minimisation learning package has been developed that considers the issues of restraint from the child’s perspective. The aim is to assist staff to be aware of, and comply with NZ Restraint Minimisation and Safe Practice Standard 2001.

A key issue addressed in the package, is the ability to identify the various types of restraint and reporting requirements. In addition, a number of strategies are presented that will aid service providers to minimise physical and psychological pain and distress experienced by children and young people.

Study days and Workshops

To complement generic teaching, a range of study days and workshops were held during 2005 to provide specialist knowledge for Nursing and Allied staff. These included Cultural Issues, Asthma in Childhood, Burns Management, Family Centred Care, CPAP, Clinical Assessment Skills and Pain Management.

Webpage and Newsletter

A bimonthly newsletter and the development of the Child Health Education webpage accessible via the Intranet, have aided dissemination of information regarding upcoming education.

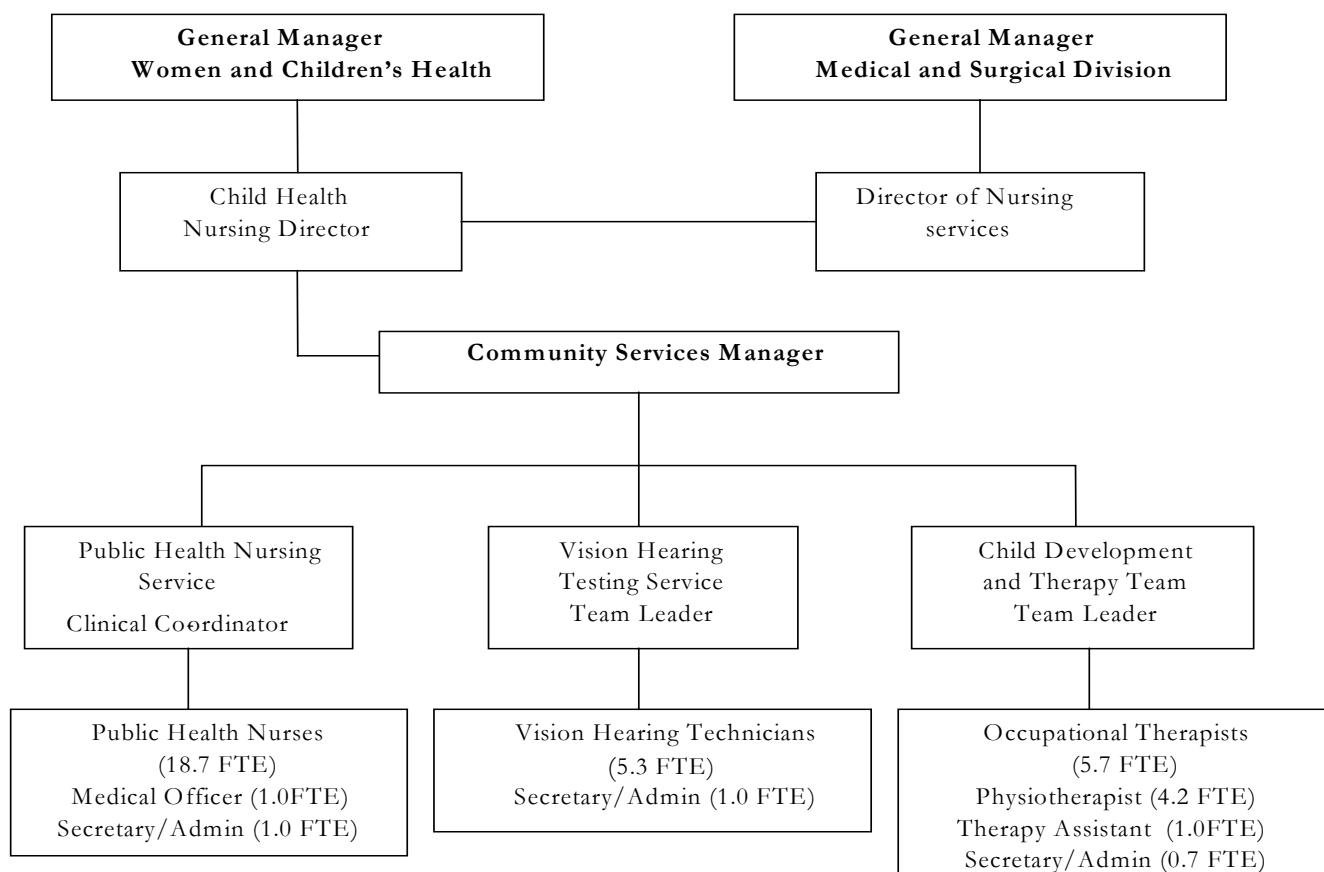
Chrissy Bond - Clinical Nurse Educator,
Kim Chenery - Clinical Nurse Educator,
Kate White - Clinical Nurse Specialist

COMMUNITY SERVICES REPORT

Community Services Team

The Community Services Team is located on the Burwood site. The Team covers a large geographical area stretching from the Rakaia River to Kekerengu and across to the Alps.

Figure 1: Community Service administration structure



Child Development and Therapy Centre (CDTC)

The Child Development and Therapy Centre (previously named Paediatric Therapy Team) is located at Beacon House, Burwood Hospital. The team consists of:

- Occupational Therapists 5.7 FTE
- Physiotherapists 4.2 FTE
- Therapy Assistant 1.0 FTE
- Receptionist/Secretary 0.7 FTE
- Co-ordinator 0.7 FTE

The CDTC team provides Occupational Therapy and Physiotherapy in the community to children from birth until they turn 16, whose functional level is compromised. The children may have a disability such as cerebral palsy, dyspraxia, autistic spectrum disorder, or a medical condition such as juvenile arthritis. They may have been born pre-term or may have developmental delay.

Therapy is provided in the child's home, elsewhere in the community (for example early childhood centre), at Beacon House site or in a hydrotherapy pool. Children may be seen individually or intervention may be provided in parent education groups.

The team also provides assessment, prescription and funding applications for wheelchairs and seating systems, equipment for the home (for example hoist, shower chair, standing frame) and housing modifications (such as ramp, wet area shower, safety glass, handrails).

For children under six years of age with multiple high needs, Early Intervention is provided in conjunction with the Ministry of Education – Early Intervention Team. Their Speech-language Therapists, Early Intervention Teachers, Psychologists and Education Support Workers, work together with the Occupational Therapists and Physiotherapists from the CDTC to cover all the child’s therapy and education needs.

The CDTC team and the Ministry of Education Early Intervention Team participate in the Early Intervention Co-ordination Service (EICS), a voluntary pilot joint initiative with the other early intervention providers in the area namely Champion Centre, Crippled Children’s Society (CCS) and Conductive Education. Representatives from all providers meet to discuss referrals. Parents are informed of available places and can make a choice if there are multiple options. This process ensures that available places are filled quickly and that children are only enrolled with one provider.

Service Development 2006

The demand for physiotherapy and occupational therapy is ever increasing. For example, more and more children are diagnosed with autistic spectrum disorder and may benefit from occupational therapy to help with sensory processing difficulties. More infants born pre-term survive and have special needs. Botox treatment is increasingly used and this requires intensive physiotherapy to ensure the expensive treatment is effective.

In an effort to manage increased workloads, therapists see children for a block of treatment of no more than 12 weeks. At the end of this period, the child’s progress and needs are reviewed. Another period of treatment may be offered, the child may be discharged or scheduled for another review in 3 to 6 months.

Another strategy the team has initiated to reach more families is parent education groups. These are suitable for children with dyspraxia or co-ordination difficulties or for children with autistic spectrum disorder or sensory processing difficulties that are referred for occupational therapy. In these group sessions, parents are taught strategies that they can use to help their child overcome difficulties and develop skills. Such group sessions are effective because parents not only learn from the therapists but also from each other. An added benefit is that the groups are a supportive environment for parents who are dealing with the many challenges of parenting a child with a disability.

Despite these measures, waiting times are longer than ideal. See Table 1.

Table 1: Waiting lists and times - June 2006 (not including children on review lists)

	P1 high priority		P2 medium priority		P3 routine priority	
	Children	Time	Children	Time	Children	Time
OT	0	1 m	40	9 m	32	15+ m
PT	10	2 m	21	6 m	21	9 m
w-s/eq	5	1 m	9	3 m	6	6 m
HM	5	3 m	8	6 m	3	12 m
Total	20	1-3m	78	3-9m	62	9-15+m

The team is considering other measures to reduce waiting times as it is recognised that the earlier therapy is started, the more effective it is. The therapists are working with the Ministry of Education – Early Intervention Team to improve their collaboration.

Vision

The vision for the future is to develop a full Child Development Team, the team would include a Paediatrician, Psychologist, Speech-language Therapist, Dietitian and Social Worker input. This team would offer a triage and assessment service, build a database of children with a disability and work in collaboration with other service providers to offer a coordinated service to children with a disability in the CDHB area.

Public Health Nursing Service

The urban Public Health Nursing Service (PHN) is located in the West Wing of the Nurses Hostel on the Burwood site. There are 5 rural offices located in Ashburton, Lincoln, Akaroa, Rangiora and Kaikoura. The team consists of:

- Clinical Coordinator 1.0 FTE
- Public Health Nurses 18.7 FTE
- Resident Medical Officer 1.0 FTE
- Receptionist 1.0 FTE

The 2005/06-year was an extraordinary year for the PHN service - the main focus was the delivery of the MenzB campaign. Core work maintained at Burwood base, as directed by the MOH during this time, included:

- 2 Public Health Nurses at PHN base daily
- Care and Protection
- 0-5years Well Child
- Neonatal BCG Vaccinations – birth to 12 weeks
- Prioritised Secondary School Youth Health Clinics
- Triage of referrals (but no ongoing case management)
- Management of phone calls in conjunction with admin staff.

Ministry of Health Directed School Based Meningococcal B Campaign

The Service was the lead provider for this campaign from roll out in June 2005 until the completion in December 2005:

- Geographical area – Kaikoura to the Rangitata River
- Number of schools – 260
- School age population targeted – 79,137 (December 2005)
- Outcomes
 - 96.2% consent rate return
 - 80.6% consented received all 3 vaccinations
 - 84.1% Maori received all 3 vaccinations (10.6% school roll)
 - 89.9% Pacific received all 3 vaccinations (2.9% school roll).

The outcome of this campaign in Canterbury was highly successful and the positive outcome is attributed to the commitment of the Public Health Nurses. From the MoH figures June 2006 the most successful age group vaccinated during the national campaign was the 5yrs – 17 yrs age group with overall national coverage of 85.5%. Also worth noting is that in the northern region, where the campaign first rolled out, there has been a 76% drop in the epidemic-strain cases of Meningococcal B between 2003 and 2005.

Service development 2006

The arrival of 2006 brought about an opportunity to reflect on the re-configured service provided by the PHN's during the 2005 MenzB campaign. This in turn provided a platform to begin developing an improved quality service delivery and to ensure the service meets the requirements of the Health and Disability Sector Standards. Quality processes initiated include:

- Establishment of Triage Teams - this will improve consistency of referral management and allow for more equitable workload among staff
- Establishment of a duty PHN – to undertake immediate triage of referrals and follow up on phone calls received from referrers
- Development of a comprehensive referral form that is to include parental consent/signature
- Development of a comprehensive nursing assessment form which will ensure that consistent assessments are completed and consistent and accurate documentation is obtained
- Development of a data collection form that will accurately reflect the work carried out by the PHN service.

Establishment of BCG 12 weeks – 5 years for “at risk” children

At the request of Planning and Funding, the Service began undertaking BCG vaccinations of identified “at risk” children who are over 12 weeks and under 5 years of age, who have missed their neonatal BCG vaccination. The service has been funded additional hours of 0.6 FTE to establish clinics and to provide education to internal and external agencies that can assist with the identification of the “at risk” groups.

Vision Hearing Testing Service

The Vision Hearing Testing Service is located in the West Wing of the Nurses Hostel on the Burwood site. The team consists of:

- Team Leader 0.2 FTE
- Vision Hearing Technicians 5.3 FTE
- Administrator 1.0 FTE

Vision Hearing Technicians provide a free screening service for both preschool and school aged children covering a geographical area from Kaikoura to Ashburton. The service is contracted to provide screening for:

- All 3 year olds – middle ear function (tympanometry testing)
- All 4 year olds – visual acuity
- All 5 year olds – tympanometry plus audiometry testing; visual acuity
- All Year 7 students – visual acuity plus colour perception in Year 7 boys.

Screening is provided in 260 schools, more than 300 early childhood centres, including 10 Te Kohanga Reo and eight Pacific Island Language Nests (visited jointly with the Pacific Trust Well Child Team). In addition screening is available in the clinic at Burwood Hospital.

Where necessary children failing tympanometry, audiometry or visual screenings were referred to an appropriate provider (e.g. GP, Christchurch Hospital Audiology Department, Eye Specialist / Optometrist) for further testing.

Service Development 2006

From the beginning of 2006 the Vision Hearing Testing Service ceased screening the vision of Year 10 pupils (no longer part of the Ministry of Health schedule) which has enabled a better coverage in the preschool area, particularly in Kohanga Reo and Pacific Island Language Nests. The general trend in recent years has been for the Preschool and New Entrant workload to increase as reflected in the following table:

Table 2: Hearing screening – initial test data

Year	Preschoolers	New Entrants (5yrs)	Total
02/03	4494	5362	9856
03/04	4915	6078	10993
04/05	5084	5912	10996
Increase over 3 yrs	590	550	1140
% increase	13.13%	10.26%	11.57%

Although statistics for 2005/6 are not yet available, as an indication of workload, service volume for the 2004/5 year was estimated to exceed 37,000 tests. Of these over 28,000 were initial tests and 9,000 were tests conducted as a result of request tests and retests of 'failed' initial tests. In March 2006, the Vision Hearing Technicians Society convened a National VHT Training Seminar in Wellington which was attended by four staff. The Seminar included guest speakers from CYFS (talking on Child Abuse), NZAO (talking on Vision screening for the future) together with a number of workshops. Of particular importance, was information presented on major changes to the enrolment management system in schools including the "Record of schools attended (E19/22)." Under the new system paper based records will be replaced with electronic recording of school results via a web based computer system called ENROL which will operate on a central database. The new system is to be introduced initially into Secondary and Intermediate schools.

Vision for Community Services

The Community Services team is an integral part of Women's and Children's Health. Over the coming year it is our intention to strengthen relationships with our secondary health care colleagues and to establish and foster relationships with key community providers.

Sharon Mason – Community Services Manager

HOSPITAL PLAY SPECIALISTS / PLAYROOM SERVICES REPORT

The Playroom is a licensed and Ministry of Education (MoE) funded, early childhood centre located within the Paediatric Wards, which provides services to children admitted through the Child Health Service. The Playroom is staffed by Hospital Play Specialists who are qualified Early Childhood Teachers and supported by part time Aides and Volunteers. Access to the Playroom offers the opportunity for hospitalised children, their families and whanau to interact, explore and learn in a familiar environment. Programming is child-centred and tailored to the needs of each child. This individualised care is to encourage participation in normalising activities; as well as facilitating appropriate coping skills and learning specific to the type of treatment or procedures that the child is undergoing.

Hospital Play Specialists oversee the programme in the Playroom as well as providing individual support, as able, for children having difficulty in coping with the stress of interventions and procedures (which are sometimes painful or distressing) or dealing with the consequences of a new diagnosis. The goal of the support is to encourage and help children develop effective coping strategies; to increase their sense of mastery and improve their ability to cope successfully with health related experiences. In this supportive capacity for children and their families/whanau we provide many of the types of services and considerations identified in the Health and Disability Sector Standards (Children and Young People) adding value and context not only for the children but also for the DHB.

During 2005, changes in funding from the MoE have enabled us to increase our staff slightly; our higher funding rate was achieved because all of the staff we employ to meet our MoE ratios of adults/children are qualified and registered ECE teachers. These individuals then go on to complete training towards certification with the Hospital Play Specialist Association of Aotearoa/New Zealand. Although we are still below the staffing level recommended to provide appropriate services to children and young people in hospital there has been a significant improvement over the past 2-3 years. Services are still not consistently available to children outside wards 21, 22 and CHOC.

There has been a relatively high turnover of our small staff during the past year as three HPS (including the team leader) have gone on maternity/parental leave. This has resulted in some delay in completion of the teaching modules/certification, as there was not anyone in the local area with the relevant qualifications to carry on with this aspect of the program. The high quality of the replacement staff and extra support from the Hospital Play Specialist Association has meant that disruption in services to children and families and staff have been minimised.

Throughout 2005 we have continued to provide teaching sessions and support to other members of the Health Care Team (Medical and Nursing students, nursing staff and allied health) and the early childhood sector both formally and informally. We also have accessed learning opportunities provided through individuals on the wards, the Nurse Educators and the Professional Development Liaison through the Hospital Play Specialist Association.

The MoE has been encouraged to develop criteria and guidelines for programming and funding that are specific to hospital based ECE services. Currently the criteria to which we adhere for licensing purposes are the same as those for any community-based early childhood centre. This poses difficulties as the MoE does not recognise any programming or support provided outside the playroom, and have requirements that are not practical or feasible for a program primarily for patients based within a hospital setting. It was with great enthusiasm that we accepted an invitation to take part in a working group to redefine these criteria and develop hospital specific criteria. These new draft criteria were put out for initial consultation in mid 2006.

Nicola Woollaston - Team Leader Hospital Play Specialists

CHILDREN'S CANCER AND DEVELOPMENTAL GENETICS RESEARCH GROUP REPORT

Located in the Christchurch School of Medicine, University of Otago, the Children's Cancer and Developmental Genetics Research Group is working on a variety of projects, from the basic biology of cancer in children, developmental disorders in children and the complex long-term effects of cancer treatment. Established in 2003 and directed by Dr Michael Sullivan, the research group has a team of experienced Scientists and Students, with dedicated research facilities in a purpose-built laboratory.

Dr Tracy Hale, the group's senior Scientist, joined the CCRG in late 2004, having spent several years working in the USA. Funded by a three-year project grant from the Child Cancer Foundation, Dr Hale is investigating how the fundamental scaffold of genetic material (chromatin) is disrupted in the development of some specific childhood cancers.

Dr Dejan Arsic joined the research team in 2003. Funded by a three-year Post Doctoral fellowship from the Foundation of Science Research and Technology, he has been investigating the possible role of developmental genes in the origin childhood cancer.

We were delighted to recruit Ms Rachel Purcell to our team in 2005. Rachel has many years of experience as a senior Medical Laboratory Scientist and has commenced a PhD in our laboratory. She is the lead Scientist on our International Hepatoblastoma Biology Study. With the support of the Liver Tumour Group of the International Paediatric Oncology Society, (SIOPEL) we aim to identify new biological markers for the clinical management of this particular childhood cancer. Rachel is funded by the Robert McClland trust and the Kids for Cancer Research Calendar.

With funding from Lottery Health and the Canterbury Medical Research Foundation, and working from the Cardioendocrine Research Group, Dr Tim Prickett is investigating the role of novel growth factors in the normal development of bones. We have identified that one protein, CNP, appears to be affected by some drug treatments, in particular corticosteroids. We have commenced a clinical trial (the Children's Cancer Bone Study) to investigate this protein in children undergoing treatment for leukaemia.

In 2005, we commenced a new study to investigate the potential cardiac effects of some cancer therapies in children. Funded by the Kids for Cancer Research Calendar, the Children's Cancer Heart study has begun a pilot study investigating the role of specific heart related proteins in children undergoing cancer treatment. Mr Jonathan Panckhurst completed a BMedSci(Hons) on this project in 2005 and assisted in developing a novel study comparing cardiac magnetic resonance imaging with standard cardiac echocardiography.

Dr Parkash Mandhan (International PhD student) working with Professor Spencer Beasley and under joint supervision with Dr Sullivan, completed his PhD studies in late 2005 investigating the role of specific developmental genes in the development of major anorectal malformations in children.

Dr Michael Sullivan, Paediatric Oncologist, Director of Child Cancer Research

THE RESEARCH INTO THE PROCESSES THAT CAUSE ANORECTAL MALFORMATIONS

The Children's Cancer and Developmental Genetics Research Group (CCDGR) was established in 2002 as a collaboration between research teams in the Departments of Paediatrics and Paediatric Surgery, and the Children's Haematology Oncology Centre.

The contributing researchers recognised that there was an overlap of interest in the biology and genetics of developmental disorders, particularly those producing major congenital structural defects, and malignancies.

The CCDGR has been investigating the role of developmental regulatory genes in the pathogenesis of major surgical abnormalities affecting the foregut and hindgut using a rat model. In addition, the group has commenced a national clinical study to identify the frequency of these disorders in New Zealand under the auspices of the New Zealand Paediatric Surveillance Unit.

Why Do Imperforate Anus and Related Anorectal Malformations Occur?

Abnormalities of the hindgut (anus and rectum) in children, encompass a broad spectrum of congenital defects that vary in severity. Some are quite minor (e.g. stenotic anus) and others that are extremely complex (e.g. cloacal malformations in which there is only one combined opening for the bladder, vagina and rectum). Some aspects of the early development of these organs (embryogenesis) are poorly understood, and how the abnormalities occur, is even less well understood.

However, anorectal malformations (ARMs) in the human have an incidence of 1/5,000 live births and are a significant challenge to treat. In our recent studies, we have used an ETU (Ethylenethiourea) murine model that provides us with a unique opportunity to understand the embryological basis of these congenital abnormalities. We have found that the development of ARMs results not only from abnormal septation of the cloaca by the urorectal septum, but also from changes in the regulatory genes in the developing hindgut. Specifically, we have looked at the role of sonic hedgehog (Shh) and its target genes, BMP4 and Hox, in ARMs. The hedgehog signalling pathway appears to have a crucial role: the Shh gene is involved in the differentiation of various systems including the notochord, floor plate and limbs. Shh protein acts locally on adjacent visceral mesoderm to induce expression of bone morphogenic protein 4 (BMP4) and the Hox genes.

Our studies have shown that ETU disturbs the expression of Shh signalling pathway during development of the hindgut. The expression of Shh shows time dependent changes during the critical phase of cloacal separation and its mis-expression affects the expression of the target genes, BMP4 and Hox. We have also been able to show that the Shh pathway plays a role in the development of the urinary bladder and posterior urethra.

Figure 1: These histological slides demonstrate the exact nature of the anorectal malformations produced by ETU exposure during fetal development.

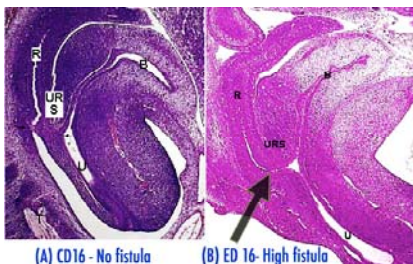
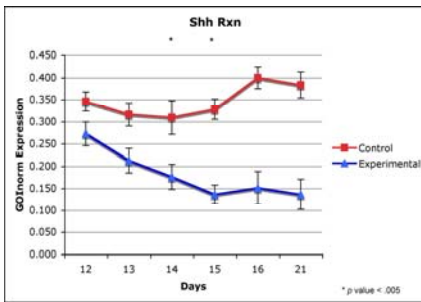


Figure 2: This graph shows the difference in the levels of Shh. In the rat developing anorectal malformations (experimental group) the levels are much lower during the critical period of hindgut development.



These studies have been performed primarily by Dr Parkash Mandhan, MBBS, MS (Paediatric Surgery) who has been employed by the Department of Paediatric Surgery as an international PhD Fellow and subsequently by the Children's Cancer and Developmental Genetic Research Group of the Christchurch School of Medicine and Health Sciences. He has been doing his PhD in Developmental Molecular Biology with support from the Otago University International Scholarship Programme. He is an overseas-trained Paediatric Surgeon with a special interest in congenital malformations. During 2005, he presented his work at the 18th International Symposium of Paediatric Surgical Research and at the 2005 concurrent meeting of the Australasian Association of Paediatric Surgeons, SPANZA and ANZPPG in Townsville, Australia.

Dr Parkash Mandhan - (International PhD student)

CHAPLAINCY REPORT

The Ministry of Health has a contract with the Interchurch Council for Hospital Chaplaincy (IHC) to provide a chaplaincy service in Christchurch Women's Hospital.

This contract is managed at a local level by the Christchurch Hospital's Chaplaincy Board whose membership is drawn from local churches, hospital management and chaplains, to oversee the work of the chaplains.

The Chaplaincy Team

There is an ecumenical chaplain and two fully trained and experienced chaplain assistants. The team also includes specific chaplains to Maori, and to those of the Roman Catholic faith. It is a 24 hour on call service. All are present to offer spiritual and emotional support to patients, their family/whanau and to the staff. Working from a holistic model, the chaplains respect each person's individuality, acknowledge and affirm divergent cultures, religions, beliefs and spiritual values. Chaplains are an integral part of the Healthcare Team.

The Focus of the Work

- To be present in times of crises and need
- Help people discover their own spiritual resources
- Listen to the stories and affirm the experiences of others
- Offer prayer, blessings, church sacraments
- Blessing of rooms and facilities and equipment
- Ceremonies of Celebration
- Rituals of farewelling.

Comment

The move to the new hospital complex has offered challenges and opportunities and the workload and involvement with patients and staff continues to grow. The organising of a farewelling ceremony held in Christchurch Cathedral and the dawn blessing service for the new hospital complex were highlights for the team. Our very close proximity to the Nurses Memorial Chapel is offering more creative options in the growing Chaplaincy role.

Table 1: Number of chaplaincy visits

Data	2004 -05	2005-06
Visits to Patients	1705	1497
Visits to Relatives	297	424
Ministry to Staff	253	347
Total Visits	2255	2268

Figure 1: Number of chaplaincy visits 2004-2006

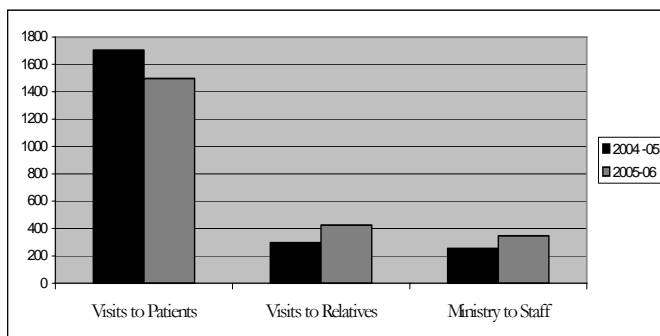
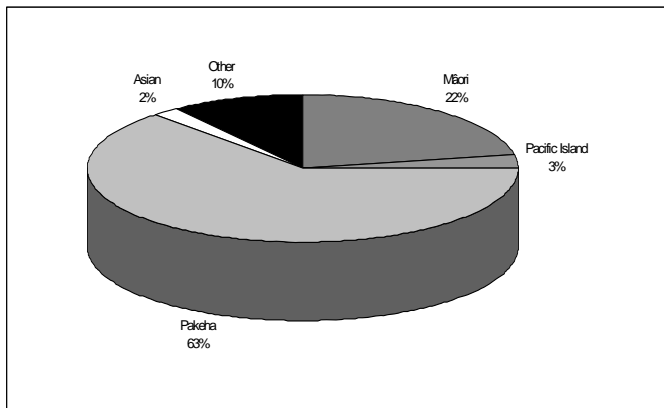


Table 2: Reasons for chaplaincy visits

Ministry Provided		
Calls to Serious Conditions	63	56
Individual Acts of Worship	375	322
Regular Corporate Worship Services	40	40
Other Corporate Worship Services		7
Room Blessings	5	14
Deaths Attended	21	16
Funerals Taken	2	4
Group education sessions provided	32	44
Group education sessions attended		18
Referrals	26	41
Meetings / case conferences attended	253	321
Maori	468	485
Pacific Island	86	66
Pakeha	1507	1400
Asian	49	42
Other	65	220

Figure 2: Ethnicity breakdown



Hilary Barlow - Chaplain

CHILD PROTECTION SERVICE REPORT

Christchurch Hospital SCAN

There were 373 referrals to Christchurch Hospital SCAN in the financial year (July 2005 to June 2006). There have been a number of different professions and departments who have referred to the Christchurch Hospital SCAN Team and the Child Protection Service. There were less Public Health Nursing referrals during the MenzB program. Christchurch Hospital Social Work continues to refer the highest proportion of cases (273 cases). However there are a significant number of referrers from other areas within the CDHB (109).

Detrimental environment, domestic violence, physical abuse and neglect are the abuse types that feature more significantly than other abuse types identified. The ethnicity figures show that the majority of individuals referred to Christchurch Hospital SCAN were New Zealand Europeans and account for 63% of cases. However, New Zealand Maori are the second largest ethnic group. They account for 28% of cases.

Table 1: No. of referrals to Christchurch Hospital SCAN

	2005	2006
Jan	20	23
Feb	41	32
Mar	35	60
Apr	28	25
May	19	41
June	53	40
July	25	
Aug	27	
Sept	29	
Oct	27	
Nov	21	
Dec	23	

Christchurch Women's SCAN

There were 110 cases referred to Christchurch Women's SCAN in July 2005 to June 2006. There has been an increase in referrals to CWH SCAN by 94% this year.

CWH Social Work has referred the majority of cases. Many of these cases are being managed by Independent Midwives. Independent Midwives referred 16 cases directly to SCAN.

Thirty percent of mothers presented to Christchurch Women's SCAN were aged between 16 and 20 years. This is not unexpected and fits in with research that illustrates that youth is more highly associated with child maltreatment. After the age of 25, there appears to be a more constant trend in respect to the age of mothers presenting to Christchurch Women's Hospital SCAN.

Table 2: No. of Cases referred to CWH SCAN

	2005	2006
Jan	6	12
Feb	8	9
Mar	4	16
Apr	6	8
May	6	14
June	5	9
July	8	
Aug	13	
Sept	2	
Oct	11	
Nov	5	
Dec	3	

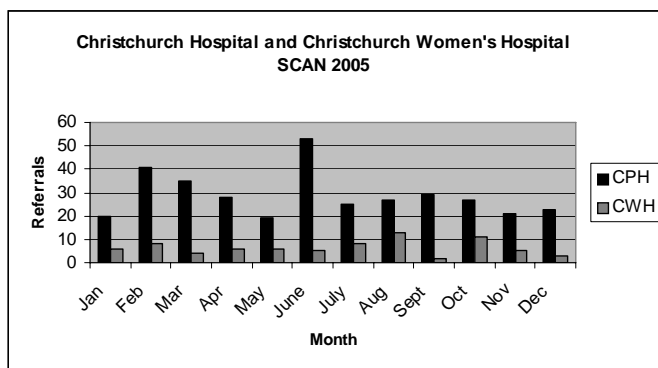
Past or current involvement with CYFS is the most frequent care and protection risk factor identified by referrers. Problems with parenting skills were also identified as a highly prevalent risk factor. Mental health issues, drug and alcohol misuse and being a young parent, were also risk factors that were highly associated with cases where there were identified care and protection concerns.

New Zealand Europeans are the largest group referred to Christchurch Women’s SCAN accounting for 67% of cases. New Zealand Maori are the second largest ethnic group accounting for 26% of referrals.

General Child Protection Service Overview

This year child protection training was directed towards ED, Paediatric and Women’s and Children’s Health Staff. The Women’s and Children’s Health Child Protection training has now been approved by the Midwifery Council and three points have been allocated for midwives who attend. There has also been training specifically developed for Paediatric Registrars and CYFS staff. There is ongoing work being conducted to review and implement further documentation and policy. In June 2006, the Child Protection Service reviewed the CDHB wide Child Protection Policy. The database continues to be utilised by the Child Protection Service.

Figure 1: Christchurch Hospital and Christchurch Women’s Hospital SCAN 2005



The Child Protection Database Steering Group has been formed and is charged with the responsibility of the implementation of the database within the CDHB.

The Child Protection Service will continue to work with CDHB staff to ensure continuous improvement in the care and protection services that children and families receive.

Susan Miles - Child Protection Co-ordinator

INFECTION CONTROL REPORT

Issues surrounding the review of the existing CDHB waste management system and how it would be applied following the move to the Christchurch Hospital campus was not without obstacles. The amalgamation of the Orderly staff to cover both sites and the subsequent rubbish and linen collection/delivery required 'fine tuning', to say the least.

Issues surrounding the fitting out of the new building, down to the number of rubbish bins, sharps containers and linen carriers were explored.

The annual CDHB Staff Influenza program occurred in March/April.

In March 2005 the Wellington Hospital Neonatal Unit was closed due to an outbreak of a Gentamycin Resistant Staphylococcus Aureus. Subsequent review by the CHL identified that an infant transferred from Wellington to CWH in January 2005 was infected with this organism. Investigations ensued that involved screening of all staff identified as having cared for the infant which showed there had been no cross-infection. The existing processes surrounding the testing of infant's eyes (retinopathy of prematurity) in the Neonatal Unit were reviewed as infant's 'sticky' eyes may have been implicated in the spread of infection, and the desire to subscribe to the principals of best practice.

The CDHB Infection Control Representative (LINK) annual study day occurred to a full house with Pandemic Planning being the focus of the day. Speakers included Prof Lance Jennings, Dr Chris Wynne and John Coleman, Emergency Coordinator for CPH.

Preparation for MoH Certifications commenced in October and recommendations pertaining to IC were actioned as a result.

The Pilot Perineal Trauma IC Surveillance was completed and identified that infection following perineal trauma/episiotomy was not a significant issue for this organisation. Quarterly IC Post-LSCS SSI Surveillance continued which identified no significant issues with regard to increase in infection rates.

Infection Control issues pertaining to Pandemic Planning were identified and meetings held throughout the year. I attended the Allied Health Emergency Planners Seminar as the W&CH Representative.

In November I was appointed the Chair of the NZNO National Division of Infection Control Nurses Regional Group, and coordinated a half-day study day at St Georges Hospital.

I am also a member of the 25th NZNO National Division of Infection Control Nurses Conference Organising Committee for August 2006 and have been involved in the planning strategy throughout this year.

I attended Quality Health New Zealand Surveyor update days in my capacity as a credentialed surveyor for Certification and Accreditation for the MoH.

December brought an outbreak of MRSA to the NICU, culminating in formation of an outbreak group and the successful control of the outbreak. The layout of the new facility proved adventitious in the management of this outbreak.

An increase in the number of patients presenting with MRSA has been noted, largely in those who do not fit the high-risk category. This is likely due to growth of this organism in the community. With the exception of the NICU experience, here have been no episodes of cross-infection at CWH in 2005.

Margaret Burns - Infection Control Nurse Specialist

NUTRITION SERVICES REPORT - CHILD HEALTH

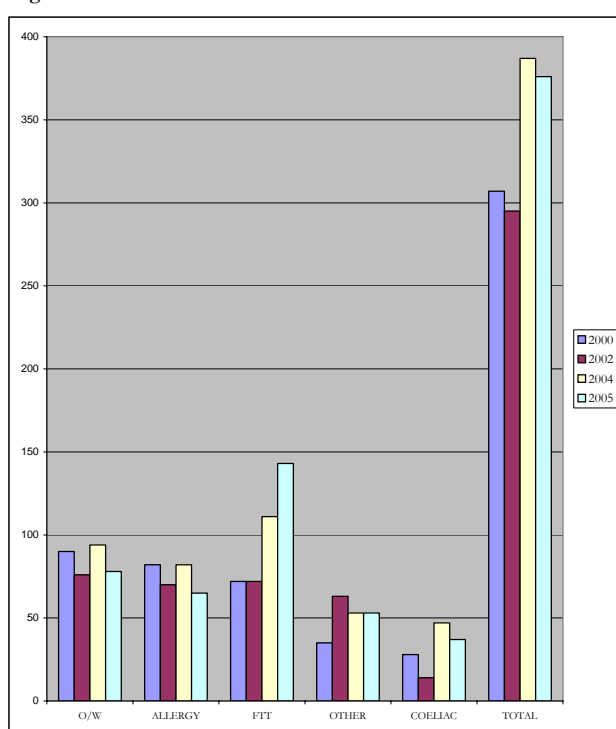
A team of four Dietitians, as 2.5 FTE Dietitians, share the responsibility of nutrition support in Paediatrics – 2 FTE in Inpatients and 0.5 FTE in Outpatient and feeding clinics.

Our aim is to promote health and well being as part of the multidisciplinary team in the treatment, management and education of nutrition related disorders for inpatients and outpatients under the care of Christchurch Hospital. This service continues to be under pressure due to a limited staff resource and no Community Paediatric Dietitian support. This report summarises the quality projects and service developments and improvements in 2005.

Outpatient Clinic Patient Referral Audit

An audit was completed on outpatient referrals to this service.

Figure 1: Referrals to Nutrition Services



Numbers of children being referred have increased by about 20% since 2000, without an increase in staffing FTE. There has also been an increase in the complexity of the referral type, requiring greater dietitian input. As a result of this, an NZOQ project was undertaken and triage was established.

Outpatient Clinic Triageing

As part of the Quality in Healthcare NZ course, a triaging system was developed for Outpatient Clinic referrals. Referrals are screened according to the triage and those who cannot be seen within a determined time-period are sent relevant nutrition information packs. 'Low priority' referrals have been classified as uncomplicated obesity, vegan/vegetarian and lactose intolerance.

New Nutritionals into Paediatrics

New paediatric nutritional products have been available to the Paediatrics group and have been used with good success:

- Infitrini: A 1kcal/ml paediatric ready – made formula for under 1 year of age
- Fortini Multifibre: A 1.5kcal/ml fibre-containing feed
- Fortini: A high energy, 1.5kcal/ml sip feed for young children.

A trial was carried out on a sip feed containing omega 3 fish oils aimed at the Oncology population. This product was poorly tolerated due to the over-riding fish flavour.

Nutrition Education Information Pamphlets

Coeliac Disease and Diabetes resources have received considerable input and updating for patients.

Increases in Patients seen by NS

Increase in PKU and metabolic cases, increase in numbers of children with Type 1 diabetes, Oncology and allergy.

Eurest

Ongoing liaison continues with Eurest to enable the optimum meal service and food provision for this group.

Goals for 2006 / 2007

- Increase staff levels in Paediatric Dietetics
- Participate in CDHB nutrition policy
- Enhance/improve data collection for in and outpatient contacts
- Ongoing updating and development of patient resources
- Establishment of a Community Paediatric Dietitian position.

Vicki Clarke - Dietitian and Professional Leader

NUTRITION SERVICES REPORT - WOMEN'S & CHILDREN'S HEALTH

Obesity rates in New Zealand are increasing. The Ministry of Health Indicators Report December 2005, showed the prevalence of obesity from 1977 to 2003 has increased from 11% to 22% among females and overweight females has seen a slight increase from 26% to 28%.

For women in childbearing years this is a significant risk factor for adverse pregnancy outcomes such as pre eclampsia, gestational diabetes, caesarean section and in infants, an increased risk of requiring neonatal intensive care. Obesity is also a risk for fertility problems and polycystic ovary syndrome, and assisted reproduction.

BMI project

A review of 50 outpatient booking forms showed a weight range of 45-145 kg, however BMI was seldom recorded. A change to the booking form to add a slot for recording BMI, and BMI calculators and posters have been implemented into the outpatient area and article submitted to Communiqué to raise awareness for Independent Midwives to improve risk assessment.

Statistics 2005

Outpatient attendance		791
Annual outpatient	Budget	700
	Variance	11.5%
First attendance		
	Diabetes	344
	Budget	243
	Variance	29.3%

The majority of Outpatient referrals are for women with diabetes in pregnancy, polycystic ovary syndrome and increased BMI in pregnancy. Our target outpatient volumes are 700 outpatients per year however, with the increase in new referrals for diabetes this has not been achieved.

Obesity is a major public health issue for New Zealand and will continue to impact on our service and drive outpatient volumes.

Update on focus areas from 2004

- Relocation to new site and implementation of standard diets for Women's and Children's Health with new food service provider
- Implementation of computerised booking system for outpatients
- BMI project completed
- Continuing consultation with the CDHB Nutrition policy
- Infant formula rotation implemented.

Helen Little - Professional Advisor for Nutrition Services

PHYSIOTHERAPY REPORT

Achievements in 2005 include

Implementation of a postnatal screen for women most at risk of physical problems following delivery. Criteria for referral include the following:

- 2nd stage longer than 2 hours
- Babies weighing > 4kg
- Tears > 2nd degree.

There has been a steady flow of referrals meeting these criteria.

The use of ultra sound for the treatment of mastitis and blocked ducts while breast feeding has been re-introduced with closer liaison with the Lactation Consultants.

An audit of call-backs for 2004 was completed and the criteria for referrals were reviewed with only small changes made. Total call-backs in 2004 numbered 24, 3 to Obstetrics and 21 to Gynaecology.

Clinical placements for physiotherapy students occurred throughout the year. By having experience in Women's and Children's Health we hope to attract these students back to this area in the future.

Action regarding the number of outpatients that 'did not attend' appointments was reviewed. Reminder letters are sent and phone calls the day before appointments are made. Despite these actions, numbers remain significant.

Data showed total Outpatient treatments were 547 for the second half of 2005 compared to budgeted volumes of 600, indicating the need for improvement in 2006.

Goals for 2006

- Achieve predicted volumes
- Explore the need/demand for post-natal exercise groups in the new hospital where individual rooms mean women have less support from each other. Groups could be an efficient way to use Therapist's time. We believe all women could benefit from advice on postnatal exercises
- Source valid and standardised outcome measures for treatments of continence patients and implement their use.

Kay Boone - Team Leader Physiotherapy

SOCIAL WORK & COUNSELLING SERVICE REPORT

Over the last 12 months, our Service has noticed the continued increase in referrals which feature domestic violence. Without doubt, domestic violence is a health care issue. We see the impact on the health of women, on unborn / newborn babies, on children and families.

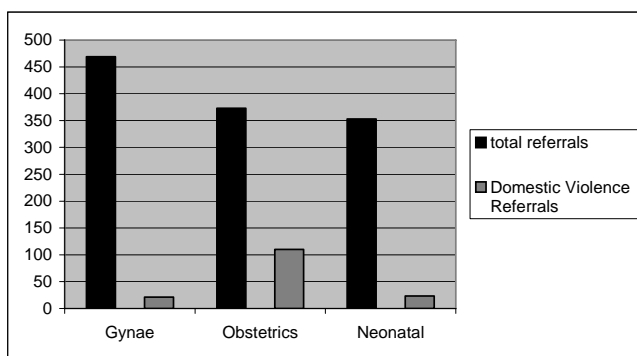
Our referrals reflect the many ways domestic violence may in fact be present. Some women are referred directly as a result of assault during pregnancy, which leads to presentations to the Emergency Department or Women's and Children's Health Services. Others are reported to us by the Police, who whenever they attend a domestic violence incident in the community where children are present / a woman is pregnant, report this to CYFS. Others may present with a series of concerns on referral from LMCs and as part of a full assessment, either self disclose domestic violence, or when we check their wider history we discover a domestic violence history known to the Police and CYFS.

The Ministry of Health states "15% to 21% of New Zealand women report having experienced physical or sexual abuse, and 44% to 53% report having experienced psychological abuse, in the previous 12 months." Pregnancy is recognised as a time of high risk, where abuse can contribute to low birth weight, low maternal weight gain, limited access to care, and miscarriage. Child abuse is also more likely with increased frequency of partner abuse.

Evidence suggests between 30% and 60% of families who report one type of abuse are also experiencing the other type of abuse (MoH).

We now recognise that exposure to domestic violence between parents/adults has a significant psychological impact on children. There are also other negative health incomes for women linked to domestic violence, including increased drinking and drug use, and abused women are five times more likely to use Psychiatric services.

Figure 1 - Referrals to Social Work Department, 1/7/05 – 30/06/06



Identifying factors which contribute to a woman (or baby) being 'at risk' from actual or suspected domestic violence, should be part of all Health Practitioners practice. As a Women's and Children's Health Service, we are in a position to work with women in ways which ensure the safety of her unborn / newborn baby, children and self. Questions about violence can be routine aspects of assessment.

Early intervention is vital in being able to engage well with women, complete comprehensive assessments and ensure support agencies in the community are involved. Inter-agency cooperation is also key, as even when women do not disclose violence, other agencies may have information of a previous history of violence, and this means we can intervene to protect the women (if she is willing) and in particular a newborn or unborn baby.

We are in the process of developing a protocol to help Women's and Children's Health staff respond to obvious cases of domestic violence. However, alongside this we need to provide training to increase understanding amongst all Health Professionals in recognising potential and actual signs / symptoms of domestic violence.

Recently in Christchurch, a pilot project called the Family Safety Team has been set up. The Family Safety Team include representatives from the Police, Women's Refuge, CYFS and Child and Adult Advocacy Services. They provide advice and advocacy re domestic violence and are keen to identify gaps between agencies. The Domestic Violence Coordinator for the Police is part of the team and we are in frequent contact with her around cases we have which involve domestic violence.

The Social Work and Counselling Team will respond to any referrals related to women in our Service who have experienced or are experiencing domestic violence. We are also able to give advice and work up cases even when clients do not agree, if there are safety concerns that warrant it (particularly for the unborn baby).

Over the next 12 months we hope to collect more in depth data to help us look at trends / impact on health outcomes for mothers and babies.

Darral Campbell - Social Work Professional Advisor

RADIOLOGY REPORT

Introduction

A successful move to the first class premises of the new Christchurch Women's Hospital was the highlight of 2005 for the Radiology department. This was the end result of much planning and organising by large groups of individuals but special thanks is owed to Julie Mitchell and Gillian Parr who have worked on behalf of Radiology on this project since its inception.

The new department, with four scanning rooms meets modern and best practice levels for design, work flow and patient care. The department is fully PACS integrated. This means all images are now available to multiple viewers around the hospital as soon as the exam is completed. It also means that the department no longer has to store large numbers of space consuming film files.

Workload

There has been a further steady rise in workload, ultrasound rising 9% (see Table 1). More Christchurch Hospital Outpatient x-rays are being performed in the CWH department, to assist the main x-ray department, this accounts for most of the increase in x-ray numbers.

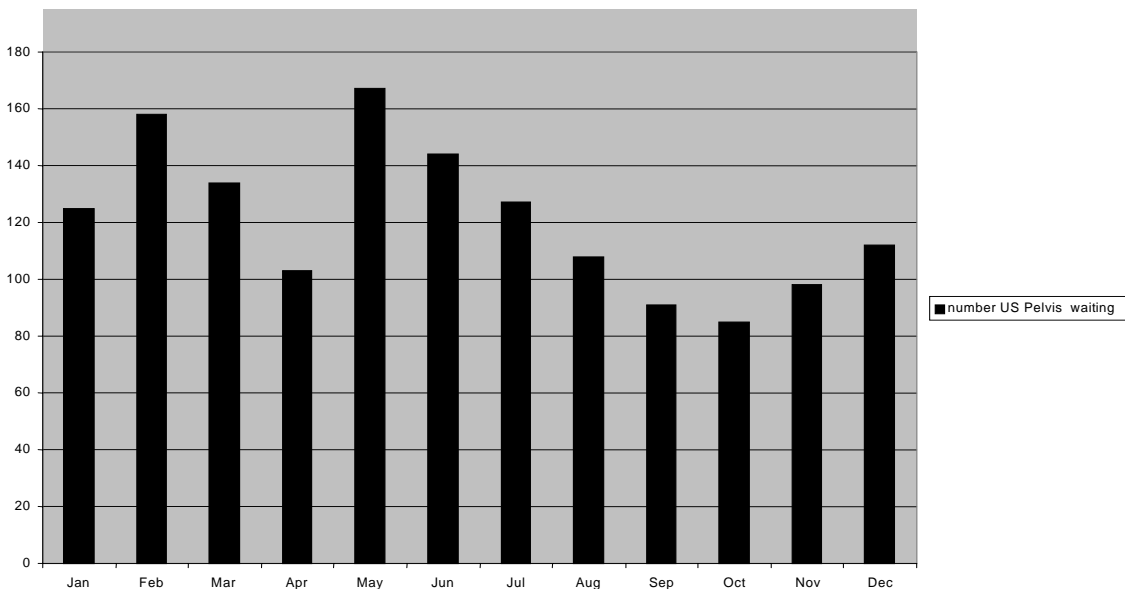
Table 1: Workload numbers / patient through put

	2004	Total		2005	Total		absolute increase	% change
	NICU	Women's	Total	NICU	Women's	Total		
CT	2	259	261	7	301	308	47	18.0
DSA		33	33		44	44	11	33.3
X-Ray	1256	692	1948	1301	1117	2418	470	24.1
MRI	29	87	116	23	75	98	-18	-15.5
US	263	8095	8358	351	8754	9105	747	8.9
Total	1550	9166	10716	1682	10291	11973	1257	11.7

Wait List Numbers

Pregnancy ultrasounds are performed as required. These take precedence over non-urgent US Pelvis examinations, so numbers of these fluctuate. Figure 1 gives an indication of how many patients are still waiting for their scan at the end of each month. We hope to have accurate waiting time data for future reports.

Figure 1: Number of patients waiting for US pelvis scans 2005



Quality Activities

The Department maintains accreditation as a provider of the Nuchal Translucency Chromosomal Risk Assessment Programme, with regular audits undertaken by the Fetal Medicine Foundation. This service is offered in conjunction with the Fetal Medicine Unit, which is located adjacent to the Radiology department.

Much time and effort was also put into preparing for IANZ accreditation, which was scheduled for early 2006. This has involved reviewing and updating all department manuals and protocols.

Staffing Levels

Section head, Dr Rachael McEwing has again been on maternity leave but we have been fortunate to have Dr Nigel Anderson return and deputise in this position. Despite a general shortage of Radiologist numbers throughout the CDHB Christchurch Women's Hospital has been well staffed.

The department has also maintained good Sonographer staffing levels throughout 2005 and we welcomed the arrival of two new students mid-year to begin a three year training contract with us.

2005 also heralded the establishment of a 0.2 FTE Ultrasound Training Coordinator for the O&G department. Julie Mitchell has taken up this role. Julie provides practical and theoretical O&G ultrasound tuition for O&G Registrars, allowing them to gain practical ultrasound skills and meet their college training requirements. The added benefit of this role has seen the development of closer ties between Radiology staff and the O&G Registrars, along with a better understanding and appreciation of each other's roles and skills. In conjunction with this position an annual one day ultrasound workshop has been established that is likely to expand in coming years to attract Registrars from around New Zealand.

Summary

The move to the new site provided a challenge and an opportunity. Easier access to CT and MR and DSA are likely to lead to a further increase in use of these modalities. This has started to happen. Workload has steadily increased.

Rex de Ryke - Charge Sonographer
Dr Nigel Anderson - Radiologist
Dr Rachael McEwing - Radiologist

HEALTH AND SAFETY REPORT

Health and Safety continued to take priority in Women's and Children's Health, with active Staff/Manager involvement in monthly Health and Safety meetings, auditing, training and incident review. The move to the new site and integration with Children's Health provided the opportunity for the two previous Health and Safety Committees to merge and benefit from their shared health and safety experiences.

The sign off of the Canterbury DHB Employee Participation Agreement (as required under the Health and Safety in Employment Amendment Act 2002) with the CHEC Union Group, allowed for the nomination and election of seven new Health and Safety Representatives, building further health and safety capacity and expertise into the services.

The Board continued to develop systems to manage health and safety across the organisation to assist further progression in the ACC Partnership Program. One of the key strategic projects being the development of a unified hazard management program.

Health and safety continues to be a vital and integrated part of how staff work in Women's and Children's Health.

Greg Devane - Senior Health and Safety Advisor

LIST OF TABLES AND FIGURES

Inside Cover

Figure 1: CDHB areaInside Front Cover

Primary Maternity Units Report

Table 1: Primary Unit births over the last five years7

Table 2: Labour and birth numbers for all Primary Units in 20057

Table 3: Admissions and transfers for all Primary Units in 20058

Table 4: Postnatal transfers for last five years 8

Table 5: Breastfeeding rates for all Primary Units.....8

Obstetric Service Report

Figure 1: Total number of births at Christchurch Women’s Hospital 13

Figure 2: Non-CDHB resident delivery trends 14

Figure 3: Number of deliveries being managed per annum 15

Figure 4: Age at delivery..... 16

Figure 5: Trend of live births recorded for all New Zealand and stratified by maternal age in years..... 16

Figure 6: Parity of women birthing 18

Figure 7: Type on instrumental delivery 19

Figure 8: Instrumental delivery by parity 19

Figure 9: Induction of labour by age..... 20

Figure 10: Induction of labour 20

Figure 11: Age at delivery..... 21

Figure 12: Induction of labour by age..... 21

Figure 13: Parity for women undergoing induction of labour..... 21

Figure 14: Delivery outcome following induction of labour 26

Figure 15: Multiple pregnancy 27

Figure 16: Multiple pregnancy – gestation at delivery 28

Figure 17: Number of women with PPH 29

Figure 18 Post partum haemorrhage by parity .. 30

Figure 19: Post partum haemorrhage by mode of delivery 30

Figure 20: Breech presentation at term..... 31

Figure 21: Gestational age at delivery vaginal breech 31

Table 1: Summary Data..... 11

Table 2: Mode of onset of birth at CWH and Primary Units 12

Table 3: Number of women birthing by year for Canterbury region..... 12

Table 4: Breakdown of mode of delivery for CDHB region (public hospitals only) 12

Table 5: Number of births at CWH

2001 – 200513

Table 6: Post-natal transfers from CWH to Primary Units13

Table 7: Births in 2005 for Canterbury region.....14

Table 8: Numbers of women from other DHB’s birthing at CWH15

Table 9: Ethnicity of women birthing at Christchurch Women’s Hospital.....17

Table 10: Operative vaginal deliveries18

Table 11: Induction of labour by year20

Table 12: Comparison of age at IOL and age for all births in 200521

Table 13: Women undergoing IOL in 200521

Table 14: Induction of labour after estimated date of delivery22

Table 15: Number of women for which hypertension recorded as the indication for IOL.....24

Table 16: Gestational age of women induced where hypertension was recorded as the primary reason for IOL.....24

Table 17: Delivery outcome24

Table 18: Induction of labour for “other”25

Table 19: IOL for indications other (excluding augmentation) and total number of women delivering (including augmentation)25

Table 20: Mode of delivery after induction of labour by year.....26

Table 21: Proportion of multiple births compared to all deliveries by year.....27

Table 22: Numbers of twins and triplets.....27

Table 23: Delivery outcome for multiple pregnancies28

Table 24: Women experiencing PPH29

Table 25: Number of women experiencing blood loss (mls)30

Table 26: PPH and plurality30

Caesarean Section Report

Table 1: CWH total CS rate 1999 – 200532

Table 2: Elective CS as a percentage of total births by year.....33

Table 3: Mode of CS for 2005, as percentages of total CS and total births.....33

Table 4: Mode of CS for 2005, as percentage of nulliparous CS and all nulliparous births.....33

Table 5: Mode of CS for 2005, as percentages of multiparous CS and all multiparous births.....34

Table 6: CS rates by ethnic group34

Table 7: Number of births per birthing centre in CDHB region 2002 – 2005.....35

Table 8:	CDHB regional numbers of CS 2002 – 2005	35
Table 9:	CDHB regional total CSR 2000 – 2005	36
Table 10:	CDHB regional elective CSR 2000 – 2005	36
Table 11:	VBAC rate for women whose only previous birth was a CS	36
Table 12:	Mode of birth for women whose only previous birth was a CS	37
Table 13:	Total VBAC rate	37
Table 14:	Main indications for primary CS as a percentage of all primary CS and all births	37
Table 15:	Primary CSR for failure to progress in labour with cervical dilation < or =3cm	38
Table 16:	Primary CS for failure to progress in labour with cervical dilation more than 3 cm	38
Table 17:	Syntocinon use prior to CS for failure to progress in nulliparous women.....	38
Table 18:	Primary CS for presumed fetal distress in labour as a percentage of all births	38
Table 19:	Fetal blood sampling prior to CS for presumed fetal distress in labour.....	39
Table 20:	Cord pH of babies delivered by CS for fetal distress / non reassuring CTG ..	39
Table 21:	Base excess of babies delivered by CS for fetal distress / non reassuring CTG	39
Table 22:	Breech delivery by gestation	39
Table 23:	ECV offered prior to primary CS for breech presentation > or = 37 weeks.....	40
Table 24:	ECV attempted prior to primary CS for breech presentation > or = 37 weeks.....	40
Table 25:	Numbers of women requesting CS by parity and previous CS status.....	40
Table 26:	Maternal request – a major factor in decision making for primary CS.....	40

Fetal Medicine Report

Figure 1:	Number of visits to Fetal Medicine unit 2003-2005.....	42
Table 1:	Statistical breakdown of visits to Fetal Medicine 2005	42
Table 2:	Classification of type of case seen in 18 months	43
Table 3:	List of major singleton abnormalities and their outcomes	44
Table 4:	List of minor singleton abnormalities and their outcome.....	45
Table 5:	List of abnormalities karyotypes and their outcomes according to Fetal Medicine scan findings.....	46
Table 6:	Evaluation of antenatal and final diagnosis at discharge in liveborns,	

	according to singleton, multiple and combined	47
Table 7:	Cases after birth in which additional abnormalities were found. Details of Fetal Medicine and Neonatal findings Presented	47
Table 8:	Admission to NICU (singleton and excluding neonatal death N=13 which many will have been admitted to NICU)	48

Diabetes in Pregnancy Report

Figure 1:	Incidence of diabetes in pregnancy over the last 5 years	49
Figure 2:	Caesarean section and vaginal deliveries 2001-2005	50
Figure 3:	Route of delivery with induction of labour.....	50
Figure 4:	Neonatal unit admission by prime diagnosis.....	51
Figure 5:	Birthweight of infants born to women with DIP	51

Perinatal Mortality Report

Figure 1:	Annual births and perinatal deaths	54
Table 1:	Perinatal Mortality Statistics: Christchurch Women's Hospital In- hospital births.....	54

Obstetric Anaesthetic Report

Table 1:	Parity.....	55
Table 2:	ASA Status.....	55
Table 3:	Anaesthetic techniques	56
Table 4:	Parturient post-anaesthesia follow up	56
Table 5:	Parturient satisfaction with anaesthetic	56
Table 6:	Women happy to repeat anaesthetic ..	56
Table 7:	Side effects.....	57
Table 8:	Rate of repetition for obstetric regional anaesthetics.....	57
Table 9:	Rate of change to new anaesthetic technique.....	57
Table 10:	Mode of birth.....	58

Lactation Service Report

Figure 1:	Breastfeeding rates	60
Figure 2:	Breastfeeding category before the procedure	61
Figure 3:	Breastfeeding category after the procedure	61
Table 1:	Attendance volumes and average duration of attendance.....	59

Gynaecology Outpatient Clinics Report

Table 1:	Activities and breakdown of Speciality Gynaecology clinics 2002-2005.....	64
----------	--	----

Colposcopy and Hysteroscopy

Table 1: Source of referral.....	66
Table 2: Overall age bins.....	66
Table 3: Indication for referral.....	66
Table 4: Other reasons for referral.....	66

The Fertility Centre Report

Table 1: Oocyte aspiration and embryo transfer.....	68
Table 2: Clinical pregnancies.....	68
Table 3: Ongoing pregnancies.....	68
Table 4: Multiple pregnancy rate.....	68
Table 5: IVF (standard insemination) vs ICSI (intracytoplasmic sperm injection).....	68
Table 6: Age of women showing pregnancy and miscarriage rates (excluding donor egg cycles).....	68
Table 7: Frozen embryo report.....	69
Table 8: Implantation rates.....	69
Table 9: Live birth rate report.....	69

Gynaecological Oncology Service Report

Table 1: Primary site and age of patients with new diagnosis of Gynaecological cancer 2005.....	70
Table 2: Morphology and stage tumours for 2005.....	70
Table 3: Histological tumour types for 2005 ...	71

Lyndhurst Day Hospital Report

Table 1: Number of terminations performed at Lyndhurst.....	72
Table 2: Ethnicity.....	72
Table 3: Non NZ Residents.....	72
Table 4: Age of the client.....	73
Table 5: Transfers to AGA at CWH.....	73

Neonatal Nurse Educator

Table 1: Neonatal Service clinical education hours 2005.....	76
--	----

Neonatal Outreach Report

Table 1: Health concerns on discharge.....	77
Table 2: Infants on NAS program.....	77
Table 3: Babies admitted to the Neonatal Service.....	77
Table 4: Neonatal outreach acuity.....	78
Table 5: Discharge facilitator (figures for six month pilot).....	78

Neonatal Service Clinical Report

Figure 1: Term admission rates.....	79
Figure 2: Assisted ventilation.....	81
Figure 3: Continuous positive pressure ventilation.....	82
Table 1: Admissions to the Neonatal Service..	79
Table 2: Retrieval numbers from other birthing units.....	80
Table 3: Admissions to the Neonatal Service by birthweight group.....	80

Table 4: Admission to the Neonatal Service by gestational age.....	80
Table 5: Neonatal deaths.....	81
Table 6: Number of newborns receiving assisted ventilation.....	81
Table 7: Surgery.....	82
Table 8: Intraventricular Haemorrhage.....	83
Table 9: Data for babies alive and remaining in the unit from 6 weeks post delivery when examinations start.....	83
Table 10: Sepsis.....	84
Table 11: Chronic lung disease.....	84

Child Health Service Overview

Figure 1: Child Health Administration Structure.....	86
--	----

Department of Paediatric Medicine Report

Figure 1: FSA Outpatient referral waiting list by waiting time Paediatric Medicine.....	88
---	----

Table 1: Bed days analysis 2005.....	87
--------------------------------------	----

Paediatric Surgery Report

Figure 1: Total patients seen in Outpatient Clinics each year as part of the regional service.....	96
Figure 2: Total patients undergoing surgical procedures each year as part of the Outreach Service.....	96

Table 1: Total case weight discharge volumes in Paediatric Surgery.....	92
Table 2: Paediatric Surgery first attendance.....	92
Table 3: Paediatric Surgery subsequent attendance.....	92
Table 4: Clinical Indicator data – Paediatric Surgery 2005.....	95
Table 5: Trends in the number of clinic patients seen during outreach visits.....	95
Table 6: Trends in the number of surgical procedures performed during outreach visits.....	95

Child Health Nursing

Table 1: Bed days for Ward 21, 22 and CHOC and patient numbers for CAA.....	101
Table 2: Paediatric High Dependency Unit – total nursing hours.....	102

Clinical Nurse Educators Child Health Cluster Report

Figure 1: Generic orientation programme Child Health Nursing 2005.....	104
--	-----

Community Services Report

Figure 1: Community Service Administration Structure.....	105
---	-----

Table 1:	Waiting lists and times – June 2006 (not including children on review lists)....	106
Table 2:	Hearing screening – initial test data.....	108

The Research into the processes that cause anorectal malformations

Figure 1:	These histological slides demonstrate the exact nature of the anorectal malformations produced by ETU exposure during fetal development.....	111
Figure 2:	This graph shows the difference in the levels of Shh. In the rat developing anorectal malformations (experimental group) the levels are much lower during the critical period of hindgut development.....	112

Chaplaincy Report

Figure 1:	Number of chaplaincy visits 2004 – 2006	113
Figure 2:	Ethnicity breakdown.....	114
Table 1:	Number of chaplaincy visits	113
Table 2:	Reasons for chaplaincy visits	114

Child Protection Service Report

Figure 1:	Christchurch Hospital and Christchurch Women’s Hospital SCAN 2005.....	116
Table 1:	Number of referrals to Christchurch Hospital SCAN	115
Table 2:	Number of cases referred to CWH SCAN	116

Nutrition Services Report – Child Health

Figure 1:	Referrals to Nutrition Services	118
-----------	---------------------------------------	-----

Social Work & Counselling Service Report

Figure 1:	Referrals to Social Work Department, 01/07/05 – 30/06/06.....	122
-----------	---	-----

Radiology Report

Figure 1:	Number of patients waiting for US pelvis scan 2005	124
Table 1:	Workload numbers / patient through put	124