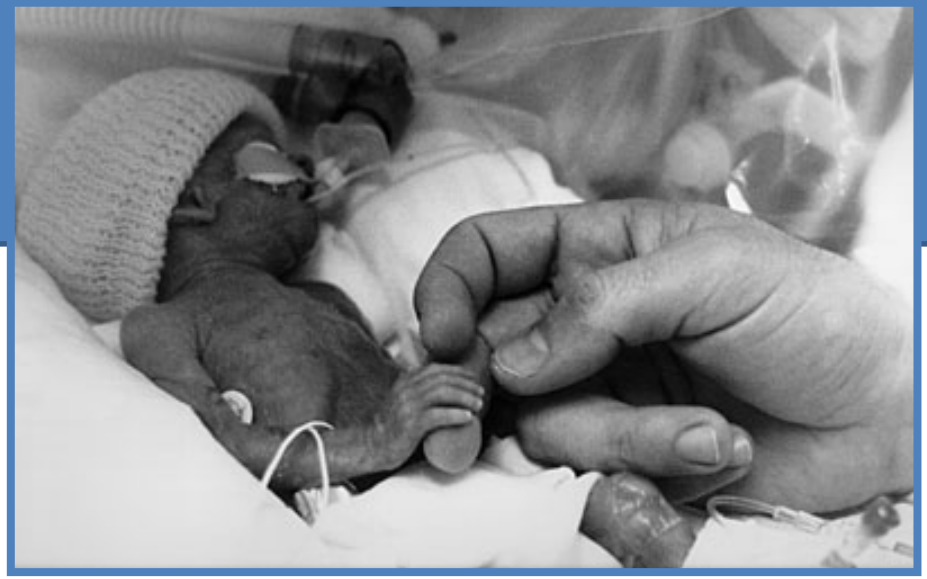
The Preterm Birth Service



Dr Katie Groom

MFM Subspecialist & Senior Lecturer

New Zealand Maternal Fetal Medicine Network

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

AUCKLAND DISTRICT HEALTH BOARD
Te Toka Tumai

Preterm birth at National Women's Health

Second lowest rate of PTB in last 10 years

Effect seen for spontaneous and iatrogenic births

Less births at 32-36 weeks

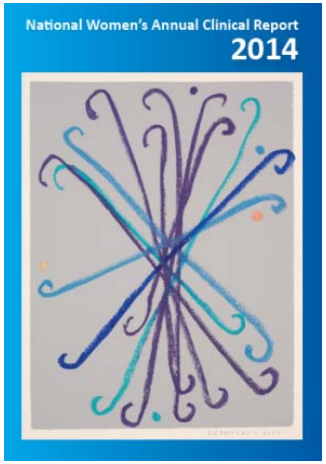


Table 13: Rates of total, spontaneous and iatrogenic preterm birth NWH 2005-2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total birthing women	**7194**	**7212**	**7695**	**7589**	**7735**	**7709**	**7523**	**7695**	**7223**	**7400**
Women birthing preterm (<37) total	685	716	796	733	658	689	684	709	673	647
Incidence %	9.5	9.9	10.3	9.7	8.5	8.9	9.1	9.2	9.3	8.7
Women birthing <32 weeks	211	212	212	222	185	212	190	203	185	185
Incidence %	2.9	2.9	2.8	2.9	2.4	2.8	2.5	2.6	2.6	2.5

Preterm birth service at NWH

Acute management of threatened PTL

Current research and the future

The Preterm Birth Clinic

Acute management of TPTL at NWH

Current therapeutic strategies do not stop PTL but we have an opportunity to optimise outcome:

- corticosteroids for fetal lung maturity
- magnesium sulphate for neuroprotection
- delivery in unit with appropriate NICU facilities

BUT

60-70% of women presenting with TPTL deliver at term

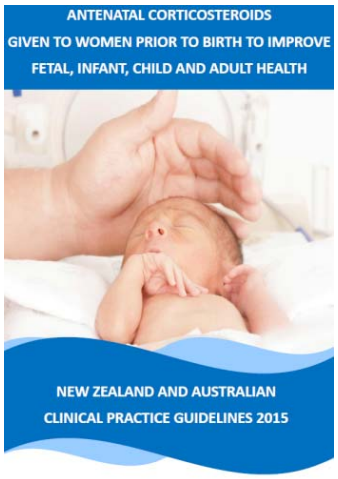
Should aim to maximise care for those at most risk and limit unnecessary interventions for others

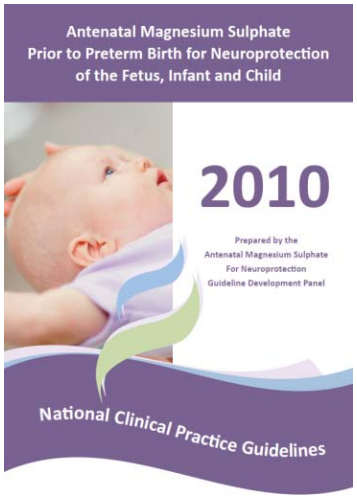
ADHB PTL Guidelines

*Combined document including: Management algorithm, fFN and tocolysis

*Updated corticosteroid guideline

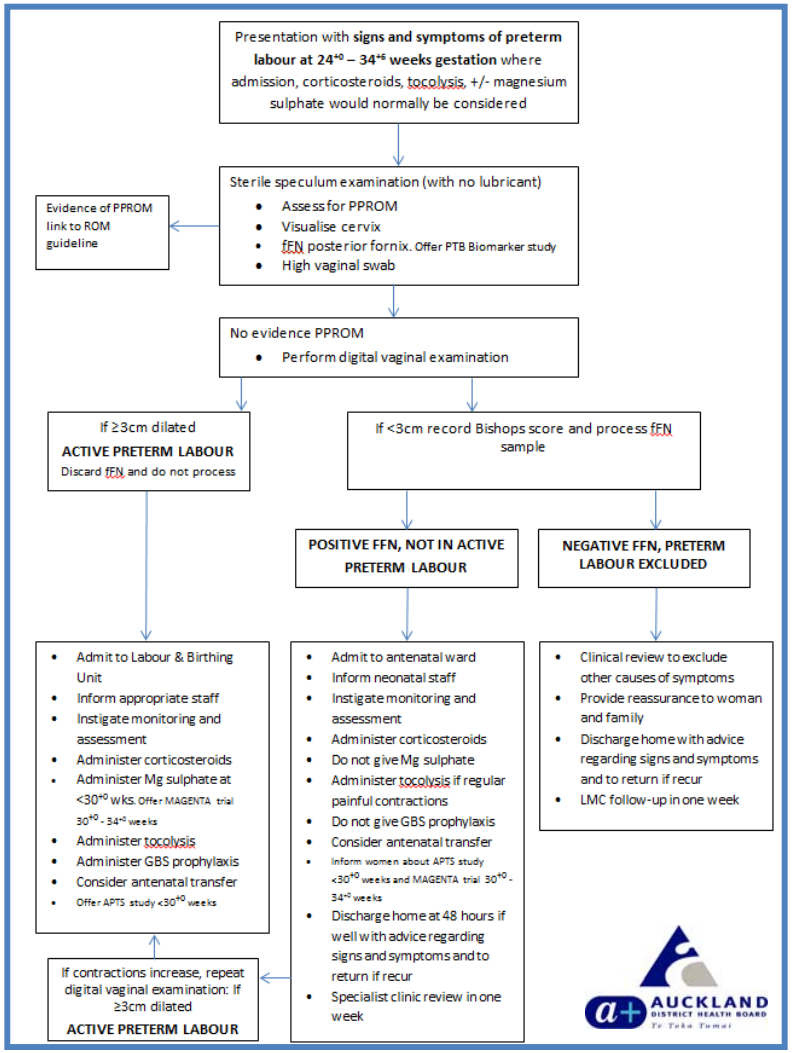
Magnesium sulphate guideline 2012





www.ligginstrials.org/ANC_CPG/downloads/Antenatal_Corticosteroid_Clinical_Practice_Guidelines.pdf
www.adelaide.edu.au/arch/MagnesiumSulphate2010.pdf

*Draft form with L&B CGG/CDs



Research and the Future

NWH is a significant contributor to research in this area

PROGRESS

Placebo controlled RCT of vaginal progesterone for the prevention of preterm birth in women at high risk

The PPROMT Trial

Expectant management or planned early delivery for women with PPROM at 34-37 weeks

A*STEROID

Betamethasone versus dexamethasone for improved survival free of childhood neurosensory disability

Current trials

98 of 923 are Auckland recruits
(total 1676 babies)

MAGENTA

MAGNESIUM SULPHATE AT 30 to 34 WEEKS' GESTATIONAL AGE: NEUROPROTECTION TRIAL

54 of 1115 are Auckland recruits
(total 1600 babies)

60 seconds APTS

Australian Placental Transfusion Study

Research and the Future

Biomarkers for Preterm Birth Study

A blinded prospective observational study of qualitative fFN, quantitative fFN & PartoSure (PAMG-1)

Aim: To compare vaginal biomarkers in women presenting with TPTL to determine whether a change to quantitative fFN or PartoSure will reduce the rate of antenatal hospital admission without compromising antenatal care or outcome if implemented into clinical practice.

Recruiting: 35/130 (since March 2015)

a+Trust

PartoSure™ Time to Delivery (TTD) Test

HOLOGIC™ The Women's Health Company

The future of tocolysis

WHO 2015: Acute and maintenance tocolysis not recommended for use in women at risk of imminent preterm birth for the purpose of improving neonatal outcome.

Proposed Aus NZ placebo controlled trial of nifedipine for women with TPTL

NHMRC and HRC funding requested

IMPACT a subcommittee of PSANZ | Interdisciplinary Maternal Perinatal Australasian Collaborative Trials Network for improving mothers and babies health

The role of a Preterm Birth Clinic

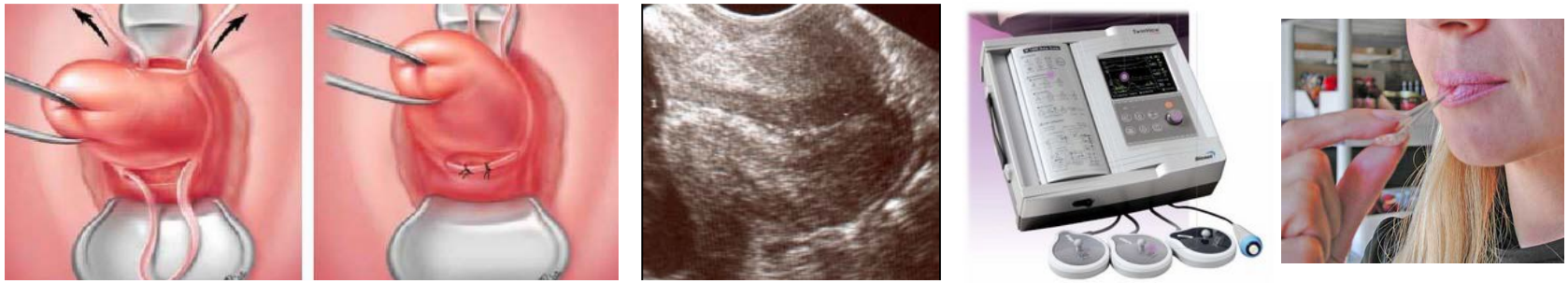
Prevention is more likely to be successful than reactive management

Aetiology and pathophysiology of preterm labour are complex

Relatively poor ability to predict

Limited interventions to offer

Unlikely that one fix will fit-all



The role of a Preterm Birth Clinic

Provide a focussed approach specific to risk

First developed as research clinics at St Thomas' and Queen Charlotte's Hospitals in London 1998/1999

Introduced in NHS at St Thomas' Hospital 2004

Multidisciplinary team

Obstetricians, midwives, sonographers & scientists

Focus on:

- Care innovations and delivery of best care
- Research and teaching

Prediction algorithms: history, cervical length measurement, quantitative fFn

Interventions: cerclage, (progesterone), hospital admission, reassurance

The role of a Preterm Birth Clinic

NHS Innovation Challenge Award 2013 £150 000

High levels of patient satisfaction	98% acceptability	
Reduction in preterm birth rates		
	9.2% → 7.2% **14% reduction**	7.8% local region
<30 weeks	3.5% → 2.8% **20% reduction**	

Reduction in costs per admission	fFn testing in clinic setting
	£6365 → £4545 → £7769

Becoming 'standard of care'
UK - >35 centres, network of clinics, data sharing
USA and Australia

Tommy's
Registered charity no 1060508
An Academic Health Sciences Centre for London
KING'S HEALTH PARTNERS
Pioneering better health for all
KING'S College LONDON

The NWH Preterm Birth Clinic

Ad hoc approach to care until formally established PTB Clinic in 2013

Dedicated multidisciplinary clinic providing adjunct care for women at high risk of spontaneous preterm birth

MFM led service

Local, regional and some national referrals

Weekly clinic (& urgent referrals)

New Zealand Maternal Fetal Medicine Network

AUCKLAND DISTRICT HEALTH BOARD Te Toka Tumai

The NWH Preterm Birth Clinic

Referral Criteria

- Previous spontaneous PTB/PPROM <36 weeks
- Previous spontaneous second trimester loss 16-24 weeks
- Cervical surgery (LLETZ) histological >10mm depth
- Knife cone biopsy or trachelectomy or LLETZ >1 procedure
- Congenital uterine and/or cervical anomaly
- Short cervix in current pregnancy <25mm at <24 weeks
- Other e.g. multiple uterine instrumentations (STOP, ERPC), history of DES exposure (woman/mother)

The NWH Preterm Birth Clinic

Pre-pregnancy/pregnancy loss review

Early pregnancy review (10-12 weeks)	History – aetiology Examination – previous Cx surgery TV cervical scan Swabs – treat STI, BV Lifestyle advice – smoking, activity
Plan of care	Elective cerclage (Progesterone) Serial surveillance
Serial surveillance	Fortnightly review 16-24 weeks TV cervical length 10Q fFn at 23-24 weeks with QUiPP calculator
Intervention	Cerclage or progesterone Admission, corticosteroids Reassurance and avoidance of intervention

Continued LMC Care

The NWH Preterm Birth Clinic

Audit of completed PTB clinic attendance Jan 2013 – Jan 2015 n=118

excluding pre-pregnancy/pregnancy loss reviews

ADHB	**50**
Waitemata	**43**
Counties Manakau	**14**
Waikato	**7**
Northland	**3**
Southland	**1**

25 acute referrals, 93 electively planned based on pre-existing risk factors

The NWH Preterm Birth Clinic

Risk factors/referral indication	n
Previous spontaneous PTB/PPROM <36 weeks	46 (30 at <28w, range 1-3 losses)
Previous spontaneous second trimester loss	45 (range 1-5 losses)
Cervical surgery (LLETZ) histological >10mm depth	22
LLETZ >1 procedure	16
Congenital uterine and/or cervical anomaly	14
Short cervix in current pregnancy <25mm at <24 weeks	22
Multiple uterine instrumentations (STOP, ERPC)	9
Previous CS at full dilatation, cervical damage	6
Past cervical lymphoma	1

The NWH Preterm Birth Clinic

Interventions

Elective Cerclage

Standard TV = 9
High TV = 20
Transabdominal = 3

Rescue/USS prior = 7

Surveillance

USS indicated cerclage = 13
USS indicated progesterone = 9
Cerclage and progesterone = 10
Admission = 3
Antenatal corticosteroids =12

Outcomes n= 110 *(1 x TOP, 1 x non-viable, 3 x no details, 3 x not delivered)*

PTB (weeks)	n (%)	Details <24 weeks
$<24^{+0}$	6 (5.5)	*Acute – rescue cerclage before referral (22w)* *Acute – USS indicated cerclage (20w)* *Elective – elective cerclage (16w)* *Acute – twins USS indicated cerclage (22w)* *Elective – twins sudden loss (18w)* *Elective – USS indicated cerclage & progesterone (23w NND)*
$24\text{-}27^{+6}$	9 (8.2)	
$28\text{-}31^{+6}$	3 (2.7)	
$32\text{-}36^{+6}$	13 (11.8)	
$\geq 37^{+0}$	79 (71.8)	

The NWH Preterm Birth Clinic

38 year NZ European lady IVF pregnancy
Referral from MFM Colleague/Private obstetrician for follow-up after cerclage

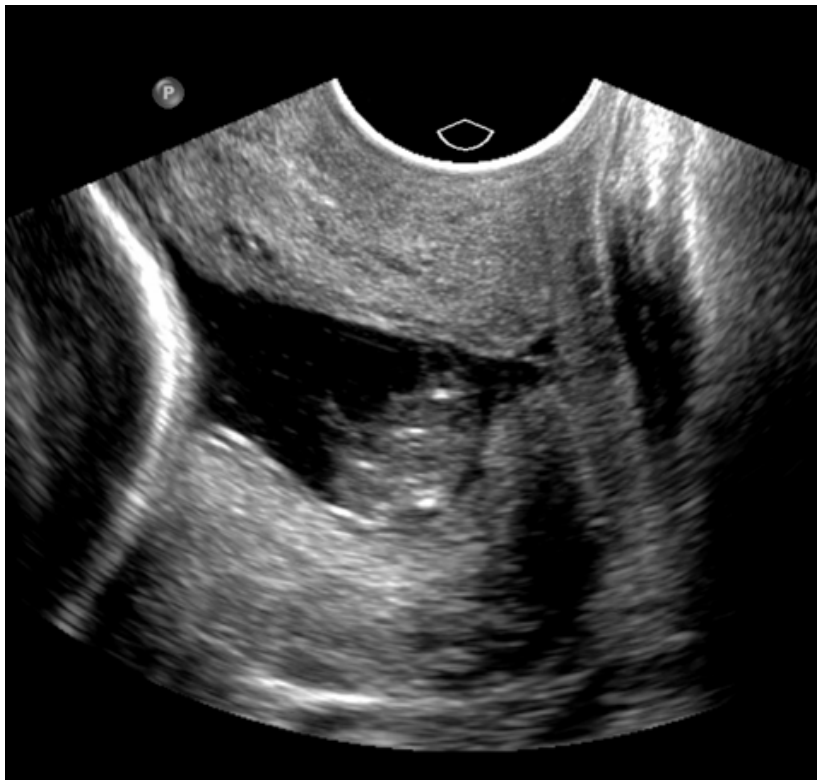
PCOS, long history of infertility
15 week miscarriage (IVF)
No cervical surgery
Previous hysteroscopy for uterine polyp
Vaginal swabs negative

19+6 weeks

Incidental finding of short cervix at anatomy scan

USS indicated cerclage on same day

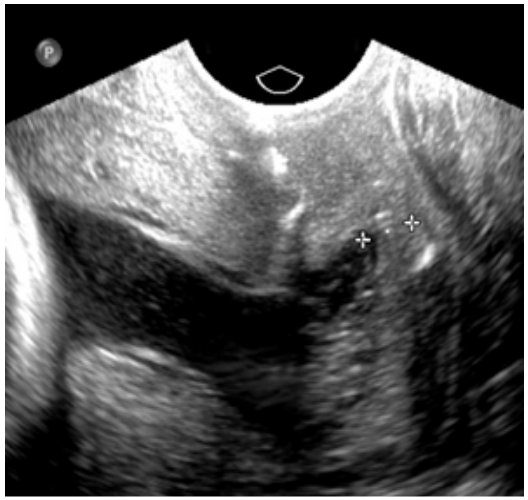
No membranes visible



24+3 weeks

Progressive cervical shortening
Asymptomatic
Still working

TVS – 5mm, no change with pressure
Quantitative fFN taken prior to scan



QUiPP

Quantitative fFn and Ultrasound cervical length In Predicting Preterm Pregnancy

A new tool to predict spontaneous preterm birth in high risk women.

Incorporates:
- History of PTB/PPROM and/or cervical surgery
- Cervical length
- Quantitative fFn
- Gestational age

Probability of delivery <30, <34 and <37 weeks & within 1, 2 and 4 weeks of test

Kuhurt and Shennan 2013

24+3 weeks

QUiPP

Previous preterm birth ≤34+6? (Y/N/Unknown)	y
Gestation of test:	
Weeks	24
Days	3
Shortest cervical length (mm	5
fFN result (ng/ml)	500
delivery before 30 weeks gestation	63.0%
delivery before 34 weeks gestation	87.6%
delivery before 37 weeks gestation	95.4%
Probability of spontaneous delivery within 2 weeks	24.1%
Probability of spontaneous delivery within 4 weeks	47.5%

'Based on these results I recommend administration of steroids to aid fetal lung maturity and consideration of admission for bedrest/close observation until 26 weeks. I will discuss with private LMC.
APTS should be discussed and offered.'

Reluctant admission

Steroids with repeat dose

Spontaneous labour at 26 +2 weeks

Magnesium and APTS

LB, discharged from NICU at 38+ CGA

Planning next ET

The NWH Preterm Birth Clinic

24 year old Rwandan lady, referral from level 2 hospital

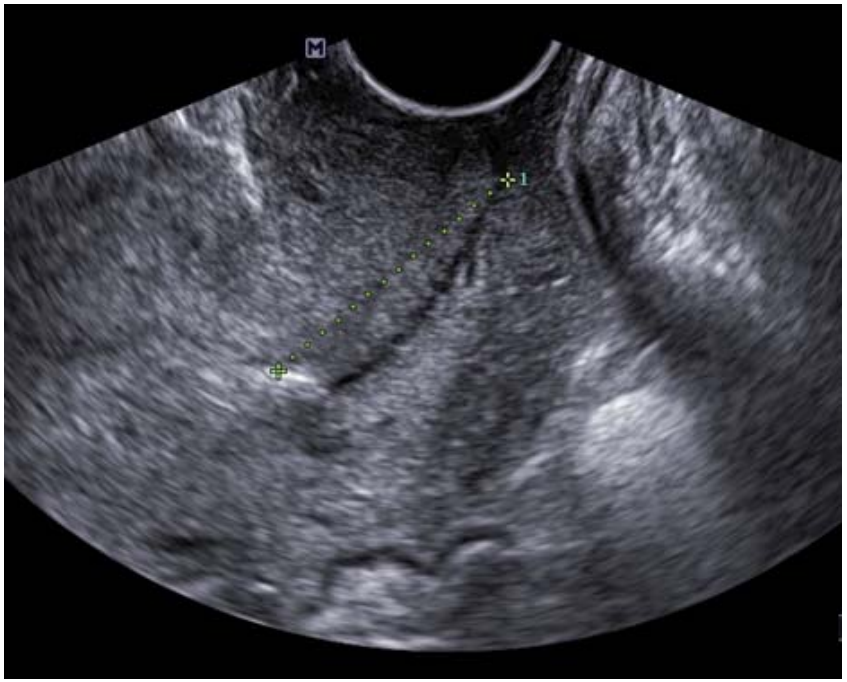
12 week miscarriage (EUA for PPH)
19 week loss, failed rescue cerclage (incidental finding Cx 3cm at anatomy scan)

No cervical surgery or other uterine instrumentation
LAC, ACA negative
Vaginal swabs negative

11+5 weeks

PV - good length cervix in vagina

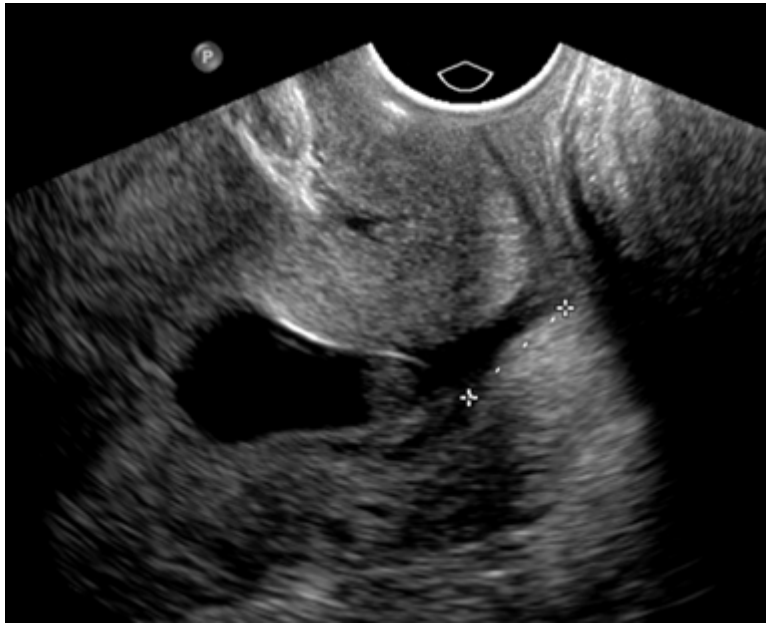
TVS - 27mm LS closed above



Cerclage vs surveillance

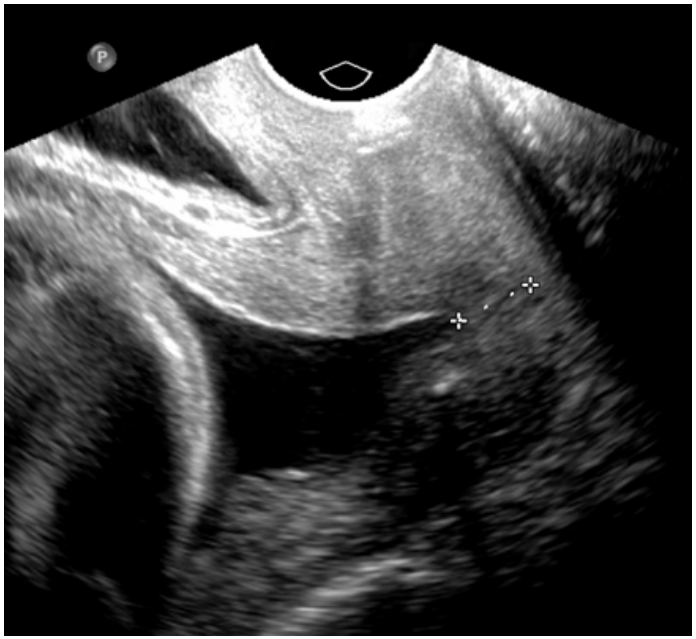
15+5 weeks Asymptomatic

Membranes midway down canal 16mm from ext os, fluid within remaining canal



USS indicated cerclage

No membranes visible



23+5 weeks

Irregular tightenings/uncomfortable

Resting from work

Cervix progressively shortening

TVS - 8mm closed

Funnel widening with pressure but no further shortening

fFN taken prior to scan

Previous preterm birth ≤34+6? (Y/N/Unknown)	y
Gestation of test:	
Weeks	23
Days	5
Shortest cervical length (mm	8
fFN result (ng/ml)	4
delivery before 30 weeks gestation	15.9%
delivery before 34 weeks gestation	39.6%
delivery before 37 weeks gestation	59.0%
Probability of spontaneous delivery within 2 weeks	2.2%
Probability of spontaneous delivery within 4 weeks	6.8%

'Based on these results I do not recommend any further intervention and would only consider the use of steroids if patient becomes symptomatic (and assessed by fFN – positive). No further TVS of cervical length are required. Elective removal of cerclage should be planned for 36 weeks.'

Referral back to local unit

Returned to work

Removal of cerclage at 36 weeks

IOL at 40 weeks

CS at 8cm for FTP

QUiPP

QUiPP aids decision making in very high risk patients (with short cervix) in early third trimester. Majority of the time it provides reassurance (to woman and health care professionals) and limits unnecessary intervention

It estimates risk it does not tell what to do

The NWH Preterm Birth Clinic

Summary

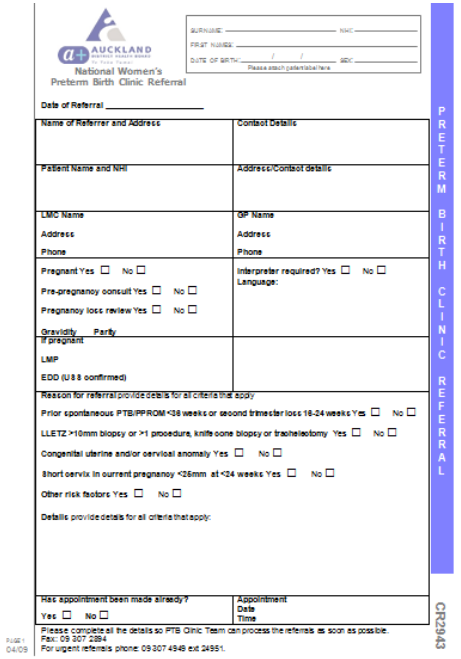
Dedicated multidisciplinary clinic providing adjunct care for women at high risk of spontaneous preterm birth

Target interventions to those most at risk

Expansion of service required to impact on overall PTB rates

Referral via MFM service

Guidelines and referral criteria under SCD review



AUCKLAND

National Women's

Preterm Birth Clinic Referral

SURNAME: NHI:

FIRST NAMES:

DATE OF BIRTH: / / AGE:

Please attach patient label here

Date of Referral

Name of Referrer and Address	Contact Details
Patient Name and NHI	Address/Contact details
LMC Name Address Phone	GP Name Address Phone
Pregnant Yes ☐ No ☐ Pre-pregnancy consult Yes ☐ No ☐ Pregnancy loss review Yes ☐ No ☐ Gravidity Parity	Interpreter required? Yes ☐ No ☐ Language:
If pregnant LMP EDD (U/S confirmed)	

Reason for referral provide details for all criteria that apply

Prior spontaneous PTB/PPROM <36 weeks or second trimester loss 16-24 weeks Yes ☐ No ☐

LLETZ >10mm biopsy or >1 procedure, knife cone biopsy or trachelectomy Yes ☐ No ☐

Congenital uterine and/or cervical anomaly Yes ☐ No ☐

Short cervix in current pregnancy <26mm at <24 weeks Yes ☐ No ☐

Other risk factors Yes ☐ No ☐

Details provide details for all criteria that apply:

Has appointment been made already? Yes ☐ No ☐	Appointment Date Time

Please complete all the details so PTB Clinic Team can process the referrals as soon as possible.
Fax: 09 307 2364
For urgent referrals phone: 09 307 4949 ext 24951.

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04/09

PRETERM BIRTH CLINIC REFERRAL

CR2943