

Fostering Translational Research in Women's Health

Lucilla Poston



KING'S
College
LONDON

WOMEN'S HEALTH - A LOCAL PROBLEM

South London; LAMBETH, LEWISHAM & SOUTHWARK

- Infant mortality in Lambeth and Southwark amongst highest in England
 - Lambeth- highest rate in England of teenage pregnancy (83.1 births/1000).
 - Women's health – voted high priority by Primary Care
 - More than 12000 deliveries/year
- A Government Priority.***
- Darzi Next Stage Review.
 - Healthcare Commission Review of Maternity Services.
 - National Service Framework for Children, Young People and Maternity and Maternity Matters.
 - Public Service Agreement (PSA) targets
 - Teenage Pregnancy Strategy.

WOMEN'S HEALTH GSTFT, KCH & KCL

AHSC BOARD

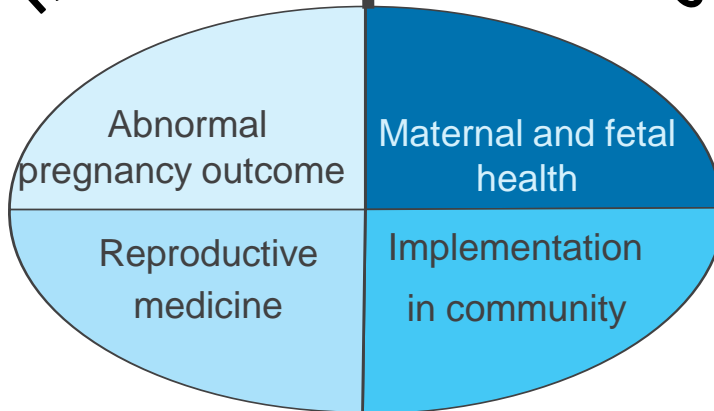
Clinical Head; Academic Lead; Teaching Lead;
Deputies & Executive Administrator

CAG EXECUTIVE

CAG Executive; Heads of Research; Heads of
Clinical Groups;

MANAGEMENT BOARD

THEMATIC ACADEMIC UNITS



RESEARCH DELIVERY UNITS	
Pre-preg Health	
Stem cell Biology	
Reproductive medicine and genetics	
Pregnancy childbirth	
Fetal & Neonatal Health	
Safety and quality	

SERVICE DELIVERY UNITS	
Antenatal Care – Low risk & high risk	
Intra-partum care	
Postnatal & Community Care	
Neonatology	
Ambulatory Gynae	
Gynae – general, Gynaecology, uro-gynaecology, menopause	
Assisted conception	
PCT's	

RESEARCH METHODS	
Complex intervention	
Epidemiology, Statistics and Bioinformatics	
Social services perspectives	
Clinical Trials	
Basic Science	

TEACHING:
Training Clinical Academics,
Nursing/Midwifery, MBBS;
Sch. Biomed Health Sciences
BSc, MSc; PGR



**Experimental
Animals**



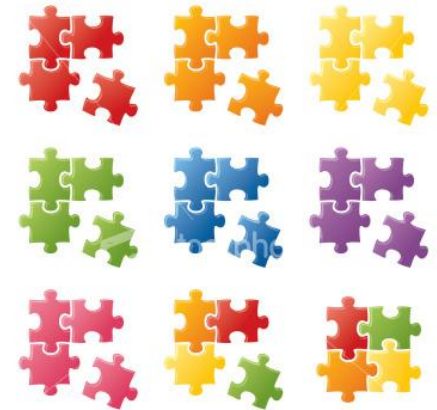
Basic Science



Clinical Studies

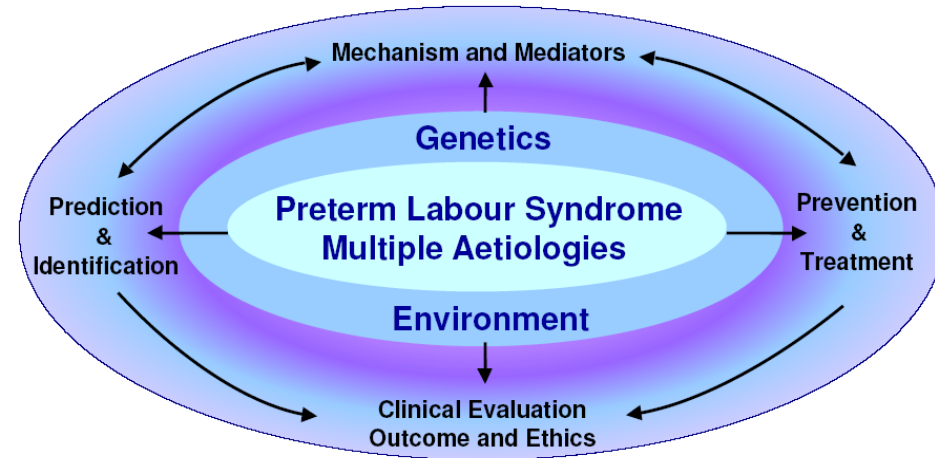


**Clinical
Trials**



**Service
Evaluation**

Preterm Labour



Problem

25 preterm babies die a week
More survive but with disability.
60 % linked to preterm labour
which is a complex syndrome

Solution

Better science.
Improve prediction.
Develop novel and effective
preventative & tocolytic therapies.

Preterm Labour Research Strategy



Basic Science



- **Uterine muscle biology**
Ca²⁺signalling, ion channels,
uterine smooth muscle
excitability
- **Onset of labour**
Inflammatory mediators,
Mechanical strain
- **Identification of novel tocolytics**
Development, and animal studies



Clinical



- **Predicting preterm delivery**
Fetal fibronectin - development
of new bedside quantitative device
IL-6 test
IGFBP-1 test
- **Clinical trials of treatments**
RCT of abdominal cerclage
RCT of progesterone

KCNQ channel complexes – targets for tocolysis?

2007-2009



2008-2010



2011-2015



2016



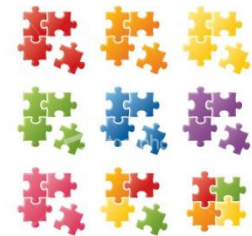
**Novel, functional
KCNQ channels
discovered in
pregnant mouse
and human
myometrium**



**KCNQ channels
activators tested
in animal model
of preterm
labour**



**Clinical studies
and trials
of pregnant
women
in preterm
labour**



**Evaluation in
clinical
practice**

**Maternal and
neonatal
outcome
improved**

Blood Pressure Measurement



Device development

Mercury replacement



Automated

Aneroid

Calibration errors

Inaccurate in some populations



Device validation

Preeclampsia

Only 3 commercially available home monitoring devices confirmed accurate.

No Hospital devices accurate.

New devices developed with commercial partner.

Development of calibration devices for primary care



Clinical Trials

Community and hospital based studies of new devices

Microlife Device

Low resource device with WHO

Preimplantation Diagnosis of Genetic Disease



Basic Science

Development of single cell genetic screening

PGD → FISH (X-Linked)
PGD → PCR (single gene disorders)

PGH → DNA amplification



Clinical Studies

Case series (> 300 cycles)

X-linked disorders and Single gene disorders

Cystic fibrosis
Huntingdon's
Spinal muscular atrophy
Epidermolysis bullosa

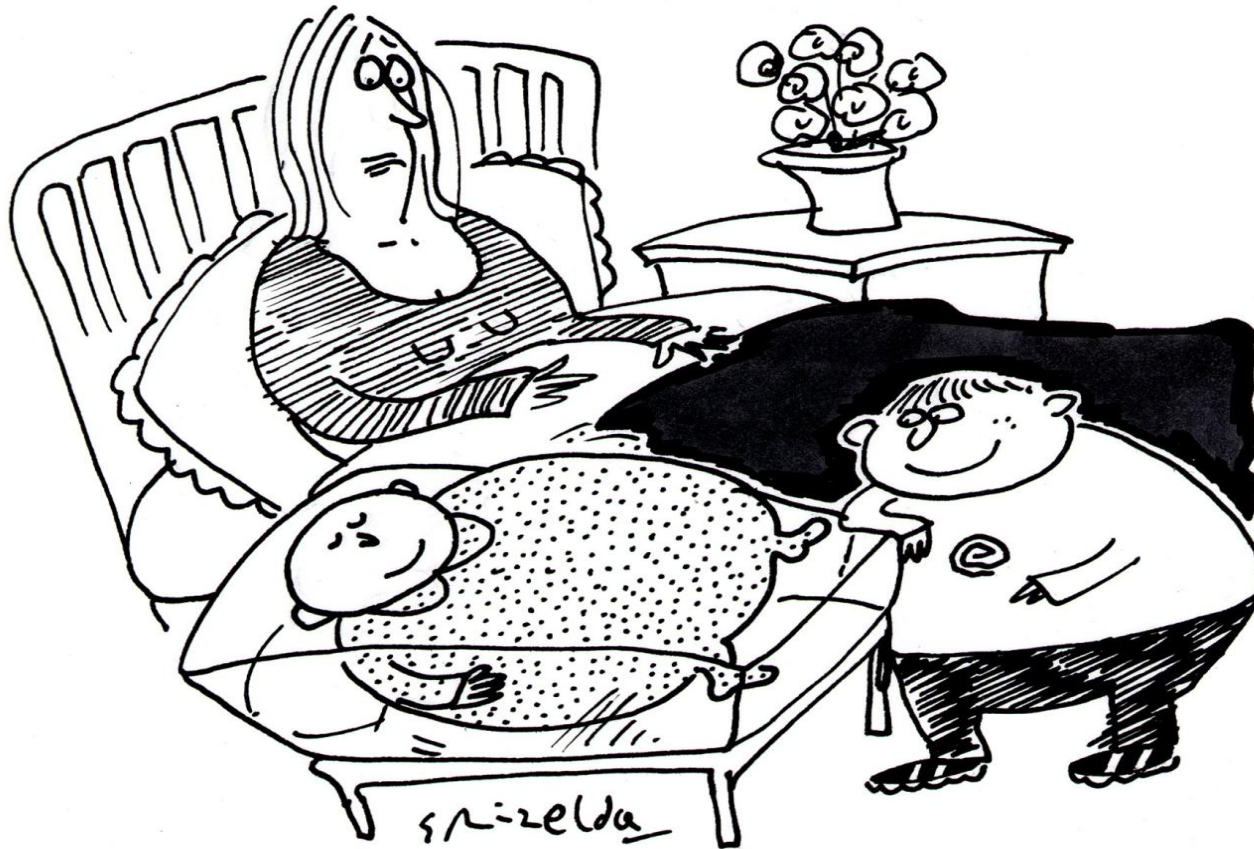


Clinical Evaluation

Evaluation of clinical Service; impact on families.
Genetic Counselling

Dissemination to other clinical centres

The Problems of Obesity in Pregnancy



Obesity in Pregnancy



Animal models

Mouse and Rat

Maternal
Gestational Diabetes
Dysfunctional labour

Offspring
Obese
Hyperphagic
Hypertensive
Insulin resistant



Clinical Studies

Obese Pregnant Women

Development of
interventions

Diet

Exercise

Pilot Study


National Institute for
Health Research



Clinical Trials

Multicentre
RCT

2700 women from
London,
Manchester, Glasgow
and Newcastle


National Institute for
Health Research



UPBEAT

The Women's Health Translational Research Team

Professor Peter Braude

Professor Linda Cardozo

Professor Clive Coen

Professor Kypros Nicolaides

Professor Debra Bick

Professor Lucilla Poston.

Professor Janice Rymer

Professor Jane Sandall

Professor Andrew Shennan

Dr Susan Bewley

Dr Clive Coen

Dr Lucy Chappell

Dr Tarek El-Toukhy

Dr Nick Kametas

Dr Con Kelleher

Dr Yacoub Khalaf

Dr Pippa Kyle

Dr Kumar Kunde

Ms Nina Khazaezadeh

Dr Kevin O'Byrne

Dr Eugene Oteng-Ntim

Dr Shanti Raju

Dr Rachel Tribe

Dr Raj Varma