Focus session

Clinical Excellence In China’s Maternity And Infant Speciality Hospitals

- scaling for growth and translating research into practice
Professor Duan Tao

Founder/CEO, Shanghai Spring Field Hospital Management Group

former President & CEO of Shanghai 1st Maternity and Infant Hospital (SFMIH) of Tongji University

段涛 教授

创始人/首席执行官，上海春田医院管理集团

(前)同济大学附属上海市第一妇婴保健院院长
Meeting the Challenges of China’s New Family Planning Policy

Tao Duan

Founder/CEO, Shanghai SpringField Hospital Management Group
Professor and Former CEO, Shanghai 1st Maternity and Infant Hospital of Tongji University
The Facts
The number of births in China

2007 : 15.94 M
2008 : 16.08 M
2009 : 16.14 M
2010 : 15.74 M
2011 : 16.04 M
2012 : 16.35 M
2013 : 16.40 M
2014 : 16.87 M
2015 : 16.55 M
2016 : 17.86 M (2 child policy)
2017 : 17.23 M
The number of births in Shanghai

2007 : 166600
2008 : 185001
2009 : 184328
2010 : 193561
2011 : 199160
2012 : 233398
2013 : 206009
2014 : 229919
2015 : 188535
2016 : 230060
2017 : 199089
The maternal mortality rate (1/100K) in China and Shanghai

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<th>Year</th>
<th>Shanghai</th>
<th>China</th>
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<td>6.68 (*)</td>
<td>36.6</td>
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<tr>
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<td>12.23</td>
<td>34.2</td>
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<td>2009</td>
<td>9.61</td>
<td>31.9</td>
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<tr>
<td>2010</td>
<td>9.61</td>
<td>30.0</td>
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<tr>
<td>2011</td>
<td>7.36</td>
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The perinatal mortality rate (1/1000) in China and Shanghai

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<th>China</th>
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<td>3 (*)</td>
<td>2007</td>
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<tr>
<td>2009</td>
<td>6.58</td>
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<td>6.32</td>
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<td>2012</td>
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<td>5.73</td>
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<td>4.99</td>
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<tr>
<td>2016</td>
<td>3.76</td>
<td>2016</td>
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<tr>
<td>2017</td>
<td>3.71</td>
<td>2017</td>
<td>*</td>
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</table>
Shanghai 1st Maternity and Infant Hospital

34000 births
3 campuses
OB physicians 90±
Midwives 90±
Capacity Building

Shanghai City

Critical Care Referral System
Specialty Care
Rapid Response Team
Audit and Accountability
Training for All and SOME
Care Solution for the Poor
Capacity Building

SFMIH-Quality
Safety and Quality Team
Ob safety and Quality System
Simulation training
Subspecialty training
Attending and Referral System
Capacity Building

SFMIH-Efficiency and Patient Experience

Teamwork and Innovation

AI

Social Media
The End
Focus session

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- scaling for growth and translating research into practice
Professor Paul Colditz

Professor of Perinatal Medicine, University of Queensland
Director, Perinatal Research Centre
Deputy Director, University of Queensland Centre for Clinical Research
Head, School of Clinical Medicine, University of Queensland
President, Paediatrics and Child Health Division, Royal Australasian College of Physicians

保罗·柯蒂斯 教授

昆士兰大学围产医学教研组创始教授
昆士兰大学围产医学科研中心主任
昆士兰大学临床医学研究中心副主任
昆士兰大学临床医学院院长
皇家澳大利亚医师协会，儿科分会主席
Best practice in research translation utilising new technologies to improve outcomes in maternity and infant specialty hospitals.

Prof Paul Colditz
保罗·柯蒂斯教授

Professor of Perinatal Medicine, University of Queensland
Director, Perinatal Research Centre
Deputy Director, University of Queensland Centre for Clinical Research
Head, School of Clinical Medicine, University of Queensland
President, Paediatrics and Child Health Division, Royal Australasian College of Physicians
How the first nine months shape the rest of your life

The new science of fetal origins

BY ANNIE MURPHY PAUL
Outcomes for very preterm infants

极早产儿的预后

Metanalysis of 14 studies 1998-2008 of 4125 very preterm (≤ 32 w) children with 3197 term controls

横向分析1998至2008年间14个对比研究，4125例极早产儿 (≤ 32周)，对照组3197例足月产儿

Cognition 认知能力

- 0.60 SD lower on mathematics tests 数学测试评分降低 0.6 SD
- 0.48 SD on reading test 阅读能力 0.48 SD
- 0.76 SD on spelling tests 拼写能力 0.76 SD

Attention and behaviour 注意力和行为

- 0.43 (teacher rating) to 0.59 SD (parent rating) attention problems 注意力问题 0.4 (教师评分)至0.59 SD (家长评分)
- internalizing and externalizing behavior problem differences small and not significant 内省能力和外向表达能力差别不大

Executive function 执行性功能

- 0.57 SD lower for verbal fluency 语言表达能力降低 0.57 SD
- 0.36 SD for working memory 记忆容量 0.36 SD
- 0.49 SD for cognitive flexibility in comparison to controls 认知灵活度比对照组低0.49 SD

Prevalence of special educational need (SEN) by gestational age at delivery (Scotland)

Early term birth (37-39 w) accounts for more than twice the attributable fraction from gestational age as all preterm births.

Environmental influences: Who’s in control? NICU

环境因素的影响: 谁占主导？是新生儿重症监护室吗

子宫内成长环境

新生儿重症监护室的环境
Clinical environment 临床环境
以皇家布里斯班和妇女医院(RBWH)为例
Infant Massage: hypothesized mechanisms

- Decreases heart rate variability
- Stimulates gastric motility and digestion
- Stimulates GH, IGF-1, Insulin, decreases cortisol
- Increase weight gain
- Improve digestion
- Decreased stress
- Improve autonomic stability

Skin pressure receptors

Decreases heart rate variability

Stimulates gastric motility and digestion

Increase weight gain

Improve digestion

Decreased stress

Improve autonomic stability

Stimulates GH, IGF-1, Insulin, decreases cortisol
Mothers in intervention group were taught massage protocol – daily massage from enrolment to term equivalent age (TEA) assessment

**TEA assessments:**
- Dubowitz neurological assessment
- Neonatal visual scale
- Non-sedated MRI brain
- Dense array EEG
- Maternal mental health questionnaires
Parenting preterm infants: how to optimise outcomes

Paul Colditz

Professor of Perinatal Medicine, University of Queensland
Director, Perinatal Research Centre
Deputy Director, UQ Centre for Clinical Research
Group Head, Clinical Neurosciences Lab
Neonatologist
Royal Brisbane & Women’s Hospital
Queensland Australia
Hypothesis: Prem Baby Triple P compared to Care as Usual (routine care) optimises child outcomes:

- behavioural and emotional adjustment - primary
- cognitive and language development - secondary

at 2 years corrected age in infants born < 32 weeks.

M. 32

in infants born < 32 weeks.
Prem Baby Triple P- Intervention
早产儿积极养成计划干预

• Hospital Session content involve:
  – Session 1: positive parenting
  – Session 2: responding to your baby
  – Session 3: survival skills
  – Session 4: partner support

• Home follow-up phone content:
  – Based on setting goals from first 4 sessions
  – information on parenting issues
  – family support
Prem Baby Triple P - Results (submitted)

Conclusions: Baby Triple P for Preterm Infants increases cognitive and motor skills but does not impact behaviour

The results are evidence that hospital-based interventions can improve some developmental outcomes for infants <32 weeks.

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Predicting brain outcomes in babies born very preterm

极早产儿大脑发育预测研究
Brain structure, function & remodelling: clinical investigation
Brain connectomics

大脑连接组学

From pictures to numbers: the work pipeline

Connectome → Networks
Fetal movement assessment - our expertise

胎动监测领域是我们的专长
Other projects  其他项目

HIE
• Seizures  癫痫
• Stem cells  干细胞

• Heart  心脏
• Nutrition  营养
Preclinical models

- work with novel animal models and human tissues to characterize key causal components of human neuropathology and to identify biomarkers and novel therapeutic targets
Clinical Trials

Hospital and University collaborative focus on clinically important perinatal problems that aims to achieve the best health outcomes for mothers and babies

High quality process & studies:

- Experience: developing & coordinating single/multi-centre studies
- Expertise: staff to develop & run studies
- Processes: best practice, regulations & legislation
- Opportunity: clinicians & students
- Viability: portfolio capacity-{trials & publications}.

Multicentre Studies: (30)

- MgSO₄. L Duley, C Crowther, et al
- Antenatal steroids. C Crowther, L Doyle, et al
- Neonatal seizure management. R Hunt
- Parenting RCT. P Colditz et al
- Oxygen saturation. P Brocklehurst, et al
- Placental transfusion. W Tarnow-Mordi, et al

Local Studies: (24)

- Screening & intervention RCT
- Long-term follow up studies
- Epidemiologic
- Cochrane
Perinatal research cycle

Clinical problem

Outcomes

Gene
Protein
Signal transduction
Cell structure

Cell function

Organ structure and function
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Q & A