

## Preparing for Life: Testing the Effectiveness of a Five Year Early Intervention Programme in Ireland

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Helping Families Change Conference 2016, Banff, Canada, 5<sup>th</sup> February 2016



# Background

Examine the impact of an Irish home visiting programme on improving parenting behaviour & children's human capital

- Early intervention may be effective from a *biological* and *economic* perspective
- *Home visiting programs* (HVPs) target families from pregnancy onwards and provide support and education to parents
  - Systematic reviews of HVPs report evidence of some short & long terms effects (Sweet & Appelbaum, 2004; Gomby, 2005; Howard & Brooks-Gunn, 2009), but modest effect sizes
- **BUT** studies mainly US-based & few account for issues which can affect the internal validity of RCTs





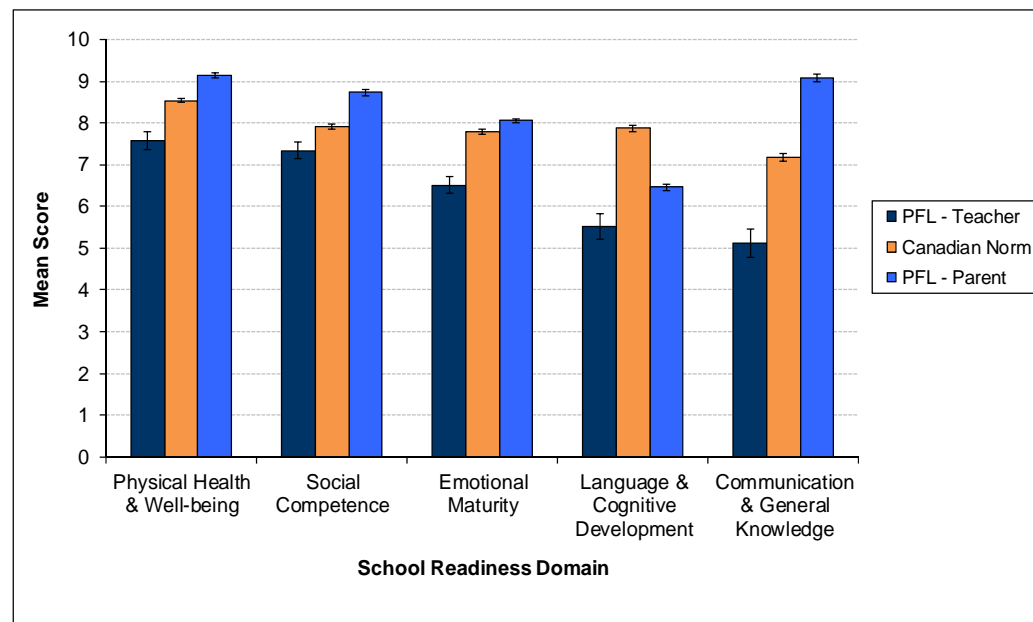
# 'Preparing for Life' programme



- **Preparing for Life** - one of first & longest running experimental early childhood intervention in Ireland
- **Community-led initiative:** operated by Northside Partnership in highly disadvantaged area of Dublin, Ireland
- **Designated Disadvantaged Community**
  - ~ 6,400 inhabitants
  - 33% dependent on social welfare
  - 60% live in social housing (>3 times national average)
  - 47% lone mothers (29% national average)
  - 16% unemployed (3 times national average)
  - 66% early school leavers (38% national average)
  - 5% third level education (29% national average)

# + Evidence of Need

- Population survey using the S-EDI to assess levels of **school readiness** of children aged 4-5 years attending the local primary schools



- **Teachers** rated children in the *PFL* cohort significantly **below** a normative Canadian sample on all domains
- **Parents** rated children in the *PFL* cohort significantly **above** a normative Canadian sample

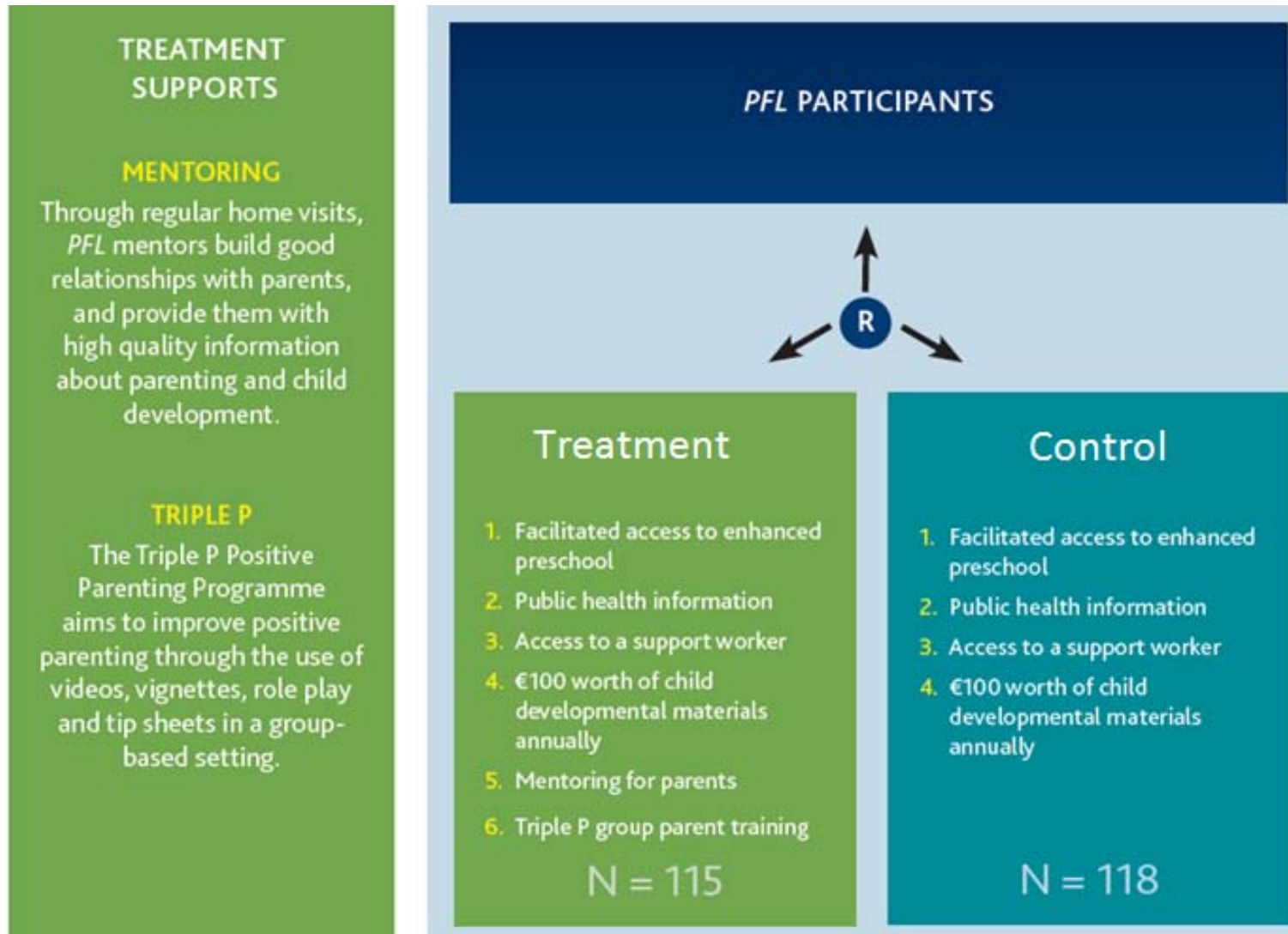
# + *'Preparing for Life'* programme



- **Aim:** Improve levels of school readiness by assisting parents in developing skills to prepare their children for school
- **Bottom-up approach:** community initiative involving 28 community groups, service providers, & local representatives
- **Theoretical Framework:** Grounded in several psychological theories of development including the *theory of human attachment*, *socio-ecological theory of development* and *social-learning theory*
- **Evaluation Design:** Randomised Controlled Trial



# Preparing for Life program





# Intervention



## 1. Home-visiting Mentoring Program

- Fortnightly home-visits from a trained mentor from pre-birth to age 5
- **Mentors role:** support and educate parents about child development & parenting
- Home visits structured around “**Tip Sheets**” - handouts presenting best-practice information relating to child development

## 2. Triple P Parenting Program (Sanders et al., 2003)

- Offered when their children are between 2 and 3 years old
- Promotes healthy parenting practices and positive parent-child attachment
- **Group Triple P:** 5 two-hour group discussion sessions and 3 phone calls



# Recruitment & Randomisation



## ■ Eligibility Criteria:

- Cohort of pregnant women residing in catchment area between Jan 2008-August 2010

## ■ Recruitment:

- Maternity hospital & within the local community (b/w 12-26 weeks)
- Population-based recruitment rate was **52%**

## ■ Randomisation:

- Unconditional probability randomisation strategy
  - 115 allocated to **Treatment** group
  - 118 allocated to **Control** group







# Baseline Characteristics



Instrument	M <sub>CONTROL</sub> (SD)	M <sub>TREATMENT</sub> (SD)	p
Mother's Age	25.30 (6.00)	25.46 (5.85)	0.85
First-time Mothers	0.50 (0.50)	0.54 (0.50)	0.49
Mother Married	0.18 (0.38)	0.14 (0.35)	0.52
Mothers with Low Education	0.40 (0.49)	0.34 (0.47)	0.34
Mothers with Primary Degree	0.03 (0.17)	0.03 (0.17)	0.86
Mothers Unemployed	0.41 (0.49)	0.43 (0.50)	0.71
Residing in Social Housing	0.55 (0.50)	0.55 (0.50)	0.97
Long Term Chronic Illness	0.08 (0.27)	0.11 (0.31)	0.50
Mental Health Condition	0.24 (0.43)	0.28 (0.45)	0.46
Planned Pregnancy	0.30 (0.46)	0.29 (0.46)	0.89
Smoking During Pregnancy	0.48 (0.50)	0.51 (0.50)	0.66
Drinking During Pregnancy	0.29 (0.45)	0.28 (0.45)	0.95



# Evaluation Design



## Impact Evaluation

1. **Interviews:** 8 home-based assessments between pregnancy and age 5
2. **Direct assessments:** Cognitive skills, executive functioning, delay of gratification at age 4
3. **Teacher reported school readiness assessment:** S-EDI in junior infants (age 4/5)
4. **Physiological data (EDA) and Diaries (DRM)**
5. **Link to admin records:** birth records and child health records

## Implementation Evaluation

1. **Implementation data**
2. **Focus groups** with participants
3. **Semi-structured interviews** with programme staff
4. **Talk and draw activities & puppet work** with children



# Data & Methodology



## ■ Data

- **Baseline data:** No statistical differences between treatment and control groups on 114/126 baseline measures (90.5%)
- **Outcome data:** Assessed at 6, 12, 18, 24, 36, 48 months
  - Child development
  - Child health
  - Parenting
  - Home environment
  - Maternal health
  - Social support
  - Childcare & service use
  - Household factors & SES

## ■ Methods

- **Permutation based hypothesis testing** (Heckman et al. 2010): small sample inference
- **Stepdown procedure** (Romano & Wolf, 2005): multiple hypothesis testing
- **Inverse Probability Weighting:** differential attrition/missing data

# + Engagement

## Home-visiting Mentoring Program

- Participants received an average of **46 home visits** by 36 months
- Each session lasted ~1hr on average
- Few predictors of engagement in home visits, apart from maternal IQ

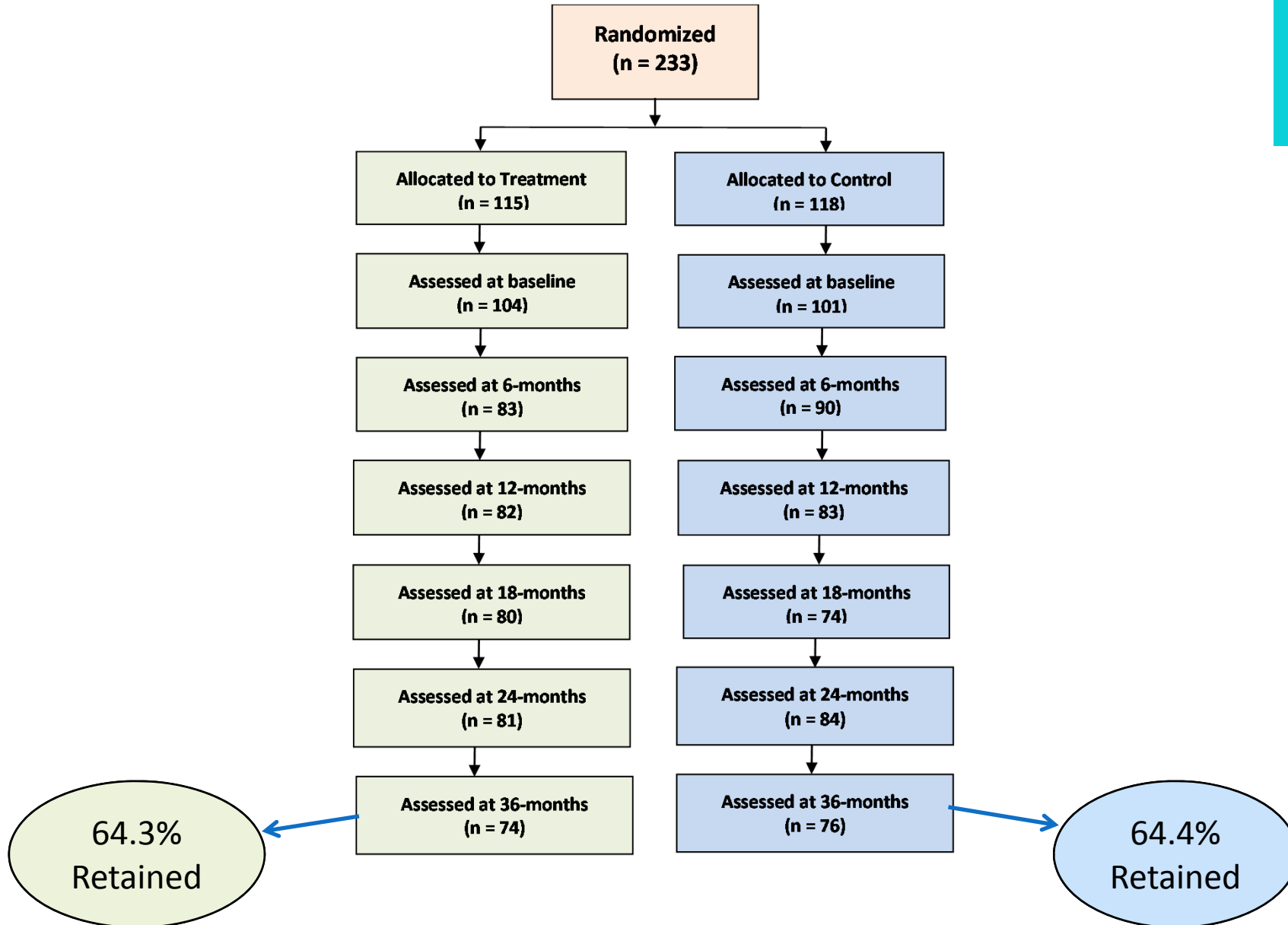
## Triple P Positive Parenting Program

- 59% (n=48) of 'engaged' participants took part in some form of Triple-P
  - Level 2 (Seminar series: 5%)
  - Level 3 (Discussion Groups: 44%) & (Primary Care: 13%)
  - Level 4 (Group: 90%)
- Few predictors of participation in Triple P, some evidence of higher SES





# Attrition





# Summary of 36 Month Results



	Proportion of measures significantly different			
	Individual Tests	Multiple Hypothesis Tests	IPW-weighted Individual Tests	IPW-weighted Multiple Hypothesis Tests
Child Development	33% (39)	38% (8)	38% (39)	50% (8)
Child Health	24% (21)	33% (3)	14% (21)	66% (3)
Parenting	26% (34)	43% (7)	26% (34)	43% (7)
Home Environment	40% (15)	50% (2)	40% (15)	0% (2)

# + 36M RESULTS: CHILD COGNITIVE DEVELOPMENT

	M <sub>TREAT</sub> (SD)	M <sub>CONTROL</sub> (SD)	P value	Effect Size d
<b>ASQ Scores</b>				
Problem Solving Score	49.79 (10.46)	45.61 (12.52)	<b>p&lt;.05</b>	0.37
Communication	53.33 (7.94)	52.00 (9.23)	ns	0.16
Personal Social Score	55.00 (6.15)	53.87 (8.57)	ns	0.15
Gross Motor Score	54.67 (8.63)	53.33 (9.67)	ns	0.15
Personal Social Score	31.53 (25.42)	34.33 (28.59)	ns	0.10
Fine Motor Score	45.00 (15.57)	43.51 (15.14)	ns	0.10
<b>Non Step-down Measures</b>				
ASQ Standardised Total Score	101.90 (13.84)	97.91 (15.62)	<b>p&lt;.10</b>	0.27
DP3 Cognitive Development	114.66 (14.39)	109.82 (14.02)	<b>p&lt;.05</b>	0.35
DP3 Cut-off	0.53 (0.50)	0.36 (0.48)	<b>p&lt;.05</b>	0.34
Child Receiving Special Services	0.11 (0.31)	0.17 (0.38)	ns	0.19

# + 36M RESULTS: CHILD SOCIO-EMOTIONAL DEVELOPMENT

	M <sub>TREAT</sub> (SD)	M <sub>CONTROL</sub> (SD)	P value	Effect Size d
<b>CBCL Domains</b>				
Total Score	22.45 (15.79)	26.82 (21.49)	<b>p&lt;.10</b>	0.23
External Problems	7.61 (5.72)	9.24 (8.42)	<b>p&lt;.10</b>	0.23
Internal Problems	6.16 (5.83)	7.20 (6.74)	ns	0.17
<b>CBCL Domains Cut-offs</b>				
Total Score cut-off	0.01 (0.12)	0.08 (0.27)	<b>p&lt;.05</b>	0.31
External Problems cut-off	0.01 (0.12)	0.07 (0.25)	<b>p&lt;.10</b>	0.27
Internal Problems cut-off	0.07 (0.25)	0.08 (0.27)	ns	0.04
<b>ITSEA</b>				
Pro-social Behaviour	1.67 (0.33)	1.62 (0.38)	ns	0.14
Aggression	0.19 (0.27)	0.21 (0.32)	ns	0.07
<b>BITSEA</b>				
Competence Score	19.03 (2.68)	18.61 (2.86)	ns	0.15
Problem Score	7.37 (5.51)	8.03 (7.74)	ns	0.10





# + 36M RESULTS: CHILD HEALTH

	M <sub>TREAT</sub> (SD)	M <sub>CONTROL</sub> (SD)	P value	Effect Size d
<b>Child Health in Last 12 months</b>				
Had an accident	0.14 (0.34)	0.22 (0.42)	<b>p&lt;.10</b>	0.23
Stayed in hospital for least 1 day	0.05 (0.23)	0.12 (0.33)	<b>p&lt;.10</b>	0.23
Had chest infection	0.28 (0.45)	0.36 (0.48)	ns	0.15
No. of health problems	1.36 (1.17)	1.49 (1.18)	ns	0.10
Had asthma	0.16 (0.37)	0.18 (0.39)	ns	0.06
Child has good health	0.88 (0.33)	0.87 (0.34)	ns	0.03
Had skin problems	0.11 (0.31)	0.11 (0.31)	ns	0.01
<b>Long Term Child Health</b>				
Has a chronic illness	0.15 (0.36)	0.24 (0.43)	<b>p&lt;.10</b>	0.22
Has a physical disability	0.01 (0.12)	0.00 (0.00)	ns	0.17
<b>Meeting Dietary Guidelines</b>				
Protein	0.32 (0.47)	0.19 (0.39)	<b>p&lt;.05</b>	0.32
Vegetables	0.32 (0.47)	0.24 (0.43)	ns	0.19



## + 36M RESULTS: PARENTING

	M <sub>TREAT</sub> (SD)	M <sub>CONTROL</sub> (SD)	P value	Effect Size d
<b>Parenting Daily Hassles</b>				
Hassle Frequency Scale	33.23 (6.82)	33.89 (8.63)	ns	0.09
Hassle Intensity Scale	31.74 (11.21)	32.64 (11.84)	ns	0.08
<b>Parenting Styles &amp; Dimensions Questionnaire</b>				
Authoritarian Parenting	1.48 (0.37)	1.62 (0.48)	<b>p&lt;.05</b>	0.32
Permissive Parenting	2.15 (0.78)	2.40 (0.78)	<b>p&lt;.05</b>	0.32
Authoritative Parenting	4.12 (0.62)	4.12 (0.62)	ns	0.00
<b>Parental Acceptance &amp; Rejection Questionnaire</b>				
Warmth/Affection	9.03 (1.61)	9.03 (2.32)	ns	0.00
Undifferentiated Rejection	12.91 (1.01)	12.86 (1.23)	ns	0.04
<b>TV Habits</b>				
Time spent by child watching TV alone	0.79 (0.91)	1.42 (1.42)	<b>p&lt;.01</b>	0.54
Time TV is on per day	7.97 (4.31)	9.40 (4.87)	<b>p&lt;.05</b>	0.31
Child watches age-inappropriate content	0.61 (0.49)	0.60 (0.49)	ns	0.01

## + 36M RESULTS: HOME ENVIRONMENT

	M <sub>TREAT</sub> (SD)	M <sub>CONTROL</sub> (SD)	P value	Effect Size d
<b>HOME Observation for Measurement of the Environment</b>				
Organisation	5.35 (0.60)	5.05 (0.90)	<b>p&lt;.01</b>	0.40
Involvement	4.20 (1.51)	3.73 (1.48)	<b>p&lt;.05</b>	0.31
Variety	4.07 (1.02)	4.11 (0.95)	ns	0.04
Learning Materials	8.42 (0.71)	8.49 (0.56)	ns	0.10
Responsivity	9.61 (1.37)	9.76 (1.12)	ns	0.12
<b>Family Environment Scale</b>				
Organisation score	50.36 (8.71)	48.43 (7.89)	<b>p&lt;.10</b>	0.23
Expressiveness score	54.64 (11.66)	53.87 (9.48)	ns	0.07
Cohesion score	55.82 (11.31)	57.71 (8.80)	ns	0.19
<b>Other Measures</b>				
Child exposed to cigarette smoke	0.36 (0.48)	0.53 (0.50)	<b>p&lt;.05</b>	0.34
Social worker working with family	0.04 (0.20)	0.03 (0.16)	ns	0.07

# + Strongest Effects (survived multiple hypothesis adjustment)

## CHILD DEVELOPMENT

- ASQ Scores
- CBCL Cut-off scores

## CHILD & MATERNAL HEALTH

- Child chronic illness
- Mother mental health

## PARENTING

- Parenting Style and Dimensions Questionnaire
- TV Habits

## HOME ENVIRONMENT

- Home Observation Measurement of the Environment





## Conclusions so far



- A bundle of parenting interventions has some positive and statistically significant effects improving parenting skills, the quality of the home environment & child development
- Results robust to small sample size, differential attrition, multiple hypothesis testing, differential misreporting & contamination
- Small to moderate effect sizes identified (0.20-0.40)
- Need to test for stability of results at 48 months



# Update on PFL

- Oldest PFL child is 7yrs & youngest is 48ms
- Evaluation ends this year
- Government investment of further €30m in Area-Based Childhood Programmes in 2012 attributed to evaluation results of original Prevention and Early Intervention Programmes
- PFL Phase II currently being rolled out

Programme website: [www.preparingforlife.com](http://www.preparingforlife.com)

Evaluation website:

<http://geary.ucd.ie/preparingforlife/>



**'Once upon an early childhood'**

3 minute film about PFL

<http://www.youtube.com/watch?v=qx4SznYddHI>