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Early Interventions for Psychosis

An assessment of an early intervention program in Winnipeg

A PATHS Equity for Children Project

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Authors

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Background

The Early Psychosis Prevention and Intervention Service (EPPIS)

- Established 2003
- Intervention for those with first-episode of psychosis
- Based on previous early intervention programs
- Assertive community treatment (ACT)
  - Assertive case management
  - Community treatment

Emphasized:

- adherence to medication,
- psychotherapy (including group therapy),
- and involvement of family in treatment

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Previous research

Background

- Reducing hospital-based treatment
- Multiple studies on hospital-based outcomes
  - No symptom measures in the Admin data
- Inconsistent significance
- Small samples/low power
- Favoured intervention

Systematic review

Review and meta-analysis

- To pool effect size estimates to determine significance

Inclusion Criteria

- Early intervention program (ACT framework)
- First-episode/early psychosis patients
- Control group
- Hospital outcomes (bed days used, any hospitalization)
- Published in English

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Systematic review

Data extraction

Bed-days outcome

- Means and SD for Treatment and control groups
- Extracted from treatment cost evaluations

Hospitalization outcome

- Number hospitalized and group N

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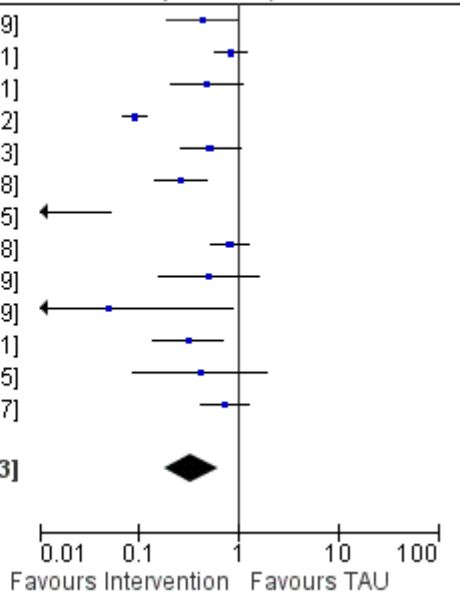
Systematic review

Meta-analysis of ever hospitalized

Study or Subgroup	Intervention Events	Intervention Total	TAU Events	TAU Total	Weight	Odds Ratio M-H, Random, 95% CI
Agius 2010	40	62	50	62	8.4%	0.44 [0.19, 0.99]
Bertelson 2008	189	275	197	272	9.4%	0.84 [0.58, 1.21]
Boden 2010	54	75	54	64	8.3%	0.48 [0.21, 1.11]
Chen 2011	328	700	635	700	9.5%	0.09 [0.07, 0.12]
Craig 2004	23	69	33	67	8.7%	0.52 [0.26, 1.03]
Cullberg 2002	105	169	105	122	8.9%	0.27 [0.15, 0.48]
Fowler 2009	34	102	82	82	3.3%	0.00 [0.00, 0.05]
Goldberg 2006	65	146	79	159	9.3%	0.81 [0.52, 1.28]
Grawe 2006	10	30	10	20	7.3%	0.50 [0.16, 1.59]
McGorry 1996	43	51	51	51	3.2%	0.05 [0.00, 0.89]
Petrakis 2012	34	60	50	62	8.4%	0.31 [0.14, 0.71]
Sanbrook 2006	3	20	6	20	6.1%	0.41 [0.09, 1.95]
Singh 2007	21	83	86	270	9.0%	0.72 [0.42, 1.27]
Total (95% CI)		**1842**		**1951**	**100.0%**	**0.33 [0.18, 0.63]**
Total events	949		1438			

Heterogeneity: Tau² = 1.07; Chi² = 141.03, df = 12 (P < 0.00001); I² = 91%

Test for overall effect: Z = 3.39 (P = 0.0007)



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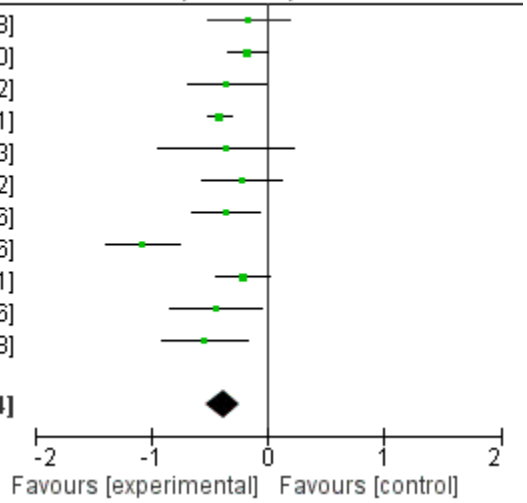
Systematic review

Meta-analysis of bed-day usage

Study or Subgroup	Intervention Mean	SD	Total	TAU Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Agius 2010	23.63	47.75	62	30.66	33.74	62	7.9%	-0.17 [-0.52, 0.18]
Bertelson 2008	96	146.7	275	123	170.6	272	12.8%	-0.17 [-0.34, -0.00]
Boden 2010	38	37	75	59	78	64	8.3%	-0.35 [-0.69, -0.02]
Chen 2011	61.6	105.5	700	113.7	141.6	700	14.3%	-0.42 [-0.52, -0.31]
Cocchi 2011	242	408.5	23	542	1,091.1	23	4.3%	-0.36 [-0.94, 0.23]
Craig 2004	35.5	78.9	68	54.9	93.6	66	8.2%	-0.22 [-0.56, 0.12]
Dodgson 2008	44.9	100.3	75	96.7	167.5	114	9.3%	-0.36 [-0.65, -0.06]
Fowler 2009	45.1	113.8	102	165.5	109	82	8.9%	-1.07 [-1.38, -0.76]
Goldberg 2006	43.65	60.9	159	60.18	90.67	146	11.2%	-0.22 [-0.44, 0.01]
McGorry 1996	9.6	20.3	51	25.4	45.1	51	7.1%	-0.45 [-0.84, -0.06]
Petrakis 2012	22.6	24.05	60	46.5	57	62	7.7%	-0.54 [-0.90, -0.18]
Total (95% CI)			**1650**			**1642**	**100.0%**	**-0.38 [-0.53, -0.24]**

Heterogeneity: $Tau^2 = 0.03$; $Chi^2 = 30.67$, df = 10 (P = 0.0007); $I^2 = 67\%$

Test for overall effect: Z = 5.31 (P < 0.00001)



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EPPIS project

Sought to evaluate the effectiveness of EPPIS

- Main outcomes
  - Hospital usage, and ED usage;
  - Suicidal behaviour;
  - Justice department data.

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PATHs Studies

Methods

Administrative data

Manitoba Adolescent Treatment centre (MATC)

- Client info
- Linked to MCHP data repository

EPPIS clients (2003-2012)

Historical controls (1998-2001)

- Controls matched to diagnostic pattern of EPPIS clients prior to program entrance

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PATHs Studies

Methods

Propensity-score adjustment for confounders

- SAS macro used to identify potential confounders
- Inverse-probability of treatment weights
- Average Treatment Effect (ATE)

During and post-treatment period assessed

- Odds ratios (binary variables)
- Hazard ratios (binary variables)
- Rate ratios (count variables)

Suicide and hospital-based service use

Results

	During treatment	After treatment
ED episodes	**RR: 2.68 (1.56 to 4.58)**	**RR: 1.76 (1.19 to 2.60)**
Hospital days	RR: 1.73 (0.57 to 5.22)	**RR: 2.70 (1.35 to 5.40)**
Inpatient episodes	RR: 1.37 (0.78 to 2.41)	**RR: 2.30 (1.49 to 3.54)**
Suicidal Behaviour	**No events (p<0.0001)**	**HR: 0.39 (0.17 to 0.94)**
Criminal accusations	**OR: 0.48 (0.34 to 0.68)**	**OR: 0.62 (0.47 to 0.82)**

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Discussion/Conclusions

First study on justice effects

Reduced suicidal behaviour

- During and after treatment

Hospital outcomes conflict with literature

- Different program implementation
- Due to low service use before program
- Emphasis on treatment engagement

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This study utilized data from Manitoba Health, Healthy Living and Seniors.

The results and conclusions are those of the authors and no official endorsement by Manitoba Health, Healthy Living and Seniors is intended or should be inferred.

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Conference: '**Pathways to Health Equity: Levelling the Playing Field**'

when: **May 30 – June 1, 2016**

where: Fort Garry Hotel, Winnipeg

- International knowledge exchange and dissemination event, building on the theme of 'from research to policy'
- Themes include: child health; social determinants of health & equity; economics & equity; measuring health equity; indigenous health; health interventions & equity; international health equity; ethics and equity; gender equity

- For more information, visit our website at:
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