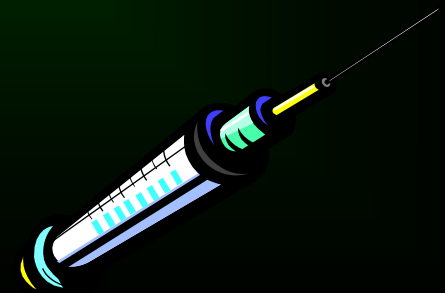


Stačí PICU přežít?

Dlouhodobá kvalita života dětí
a jejich rodin – co (ne)víme

MUDr. Jana DJAKOW, Ph.D.

MUDr. Daniel BLAŽEK





Stačí PICU přežít?

Jak se mění spektrum pacientů

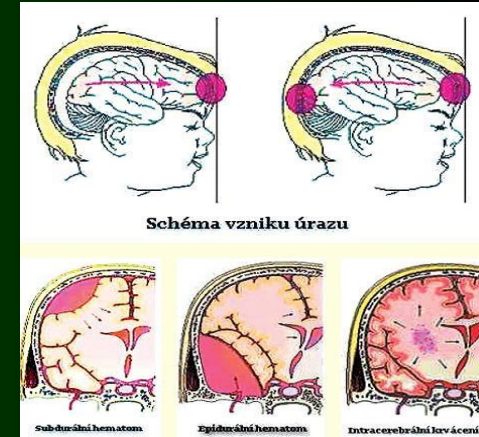
- Epiglottitis acuta suffocans
- Nárůst počtu pacientů
- Změna spektra
- Nové vědecké poznatky
- Řešení dříve smrtelných případů



Stačí PICU přežít?

Jak se mění spektrum pacientů

- Kraniotrauma
- H-I postižení mozku
- Polytrauma
- Transplantace
- Onkologická onemocnění



Stačí PICU přežít?

Surviving pediatric intensive care: physical outcome after 3 month

Hendrika Knoester, *Intensive Care Med.*, 2008; 34(6), 1076 – 1082.

- The prevalence of physical and neurocognitive sequelae in PICU survivors
- Prospective follow up study 3 month after discharge
- 250 previously healthy children: 186 patients evaluated
- Pediatric cerebral performance category (PCPC) and Pediatric overall performance category (POPC) values were determined before admission and after discharge. 69% of children had physical sequelae. 8% of children had complications related to PICU procedures.

Stačí PICU přežít?

Surviving pediatric intensive care: physical outcome after 3 month

Hendrika Knoester, *Intensive Care Med.*, 2008; 34(6), 1076 – 1082.

- The prevalence of physical and neurocognitive sequelae in patients after PICU discharge

Physical sequelae 3 months after discharge in 186 participants (more than one problem per child possible): pre-PICU morbidity is a previously unknown underlying illness that was diagnosed during PICU admission; acquired morbidity is morbidity in a child that was healthy before PICU admission

	Pre-PICU morbidity (n = 55)		Acquired morbidity (n = 73)	
	n	%	n	%
Respiratory problems	21	11	23	12
Circulatory problems	14	8	0	–
Neurological problems	6	3	48	26
Metabolic disorder	6	3		
Miscellaneous problems	8	4	14	8
Tracheotomy	–	–	3	2
Scars	–	–	17	9
Hoarseness	–	–	5	3
Postthrombotic syndrome	–	–	7	4

Stačí PICU přežít?

Long-term effects of PICU hospitalizations on families with young children

Ronda Board, Heart and Lung, 2002 Jan-Feb: 31(1), 53 – 66.

- The purpose of the study was to prospectively examine the long-term effects of the PICU experience on parents and on family adaptation
- Three groups of parents (PICU, GCU, nonhospitalized)
- The children were ages 5 years or younger
- Indicators of family adaptation included parental stress, stress symptoms, family functioning and life events were outcome measures

Stačí PICU přežít?

Long-term effects of PICU hospitalizations on families with young children

Ronda Board, Heart and Lung, 2002 Jan-Feb: 31(1), 53 – 66.

- **Results:** the mother's stress symptoms in all groups were more prevalent than a normative sample, and they perceived their families as dysfunctional after discharge.
- **Conclusion:** despite smaller sample than expected, results suggest that parents are still having stress-related symptoms and difficulties with family functioning as long as 6 months after a child's illness event.

Stačí PICU přežít?

Typické postižení rodiny po dlouhodobé hospitalizaci na PICU

- Hospitalizace dříve zdravého dítěte
- Chronicita stavu
- Cerebrální postižení
- Matka ulpívá na péči o potomka
- Deprivace zbylých členů rodiny, hlavně sourozenců
- Rozvod, prohloubená deprivace dětí



Stačí PICU přežít?

Typické postižení rodiny po dlouhodobé hospitalizaci na PICU

- Hospitalizace dříve zdravého dítěte
- Chronicita vývoje onemocnění
- Nejistota, hrozí smrt dítěte
- Rodiče věnují veškerý čas pacientovi
- Zanedbání vlastních potřeb a především sourozenců
- Po uzdravení se projeví naplno do té doby potlačené psychosomatické a psychické „tlaky“ u „zdravých“ sourozenců
- Mohou se fixovat úskosti, deprese, strachy...
- Nástup poruch může být odložený až o roky



Stačí PICU přežít?

Assessment of Long-term Psychological Outcomes After Pediatric Intensive Care Unit Admission: A Systematic Review and Meta-analysis

Michelle She Min, Ko 1., Pei-Fen Poh 2. Affiliations expand : PMID 35040918

- **Importance:** The pediatric intensive care unit (PICU) exposes children to stressful experiences with potential long-term psychological repercussions. However, current understanding of post-PICU psychological outcomes is incomplete.
- **Objective:** To systematically review and evaluate reported long-term psychological outcomes among children previously admitted to the PICU.
- **Data sources:** A systematic search of the Cumulative Index to Nursing and Allied Health Literature, Embase, MEDLINE (PubMed), and PsycINFO was conducted from database inception to June 2021. Search terms included phrases related to intensive care (eg, intensive care units and critical care) and terms for psychological disorders (eg, posttraumatic stress disorder, depressive disorder, conduct disorder, and neurodevelopmental disorder) limited to the pediatric population.

Stačí PICU přežít?

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- **Study selection:** This systematic review and meta-analysis included randomized clinical trials and observational studies reporting psychological disorders among children younger than 18 years who were admitted to the PICU with follow-up for at least 3 months. Psychological disorders were defined using the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition). Children were excluded if they were admitted to the PICU for primary brain conditions (eg, traumatic brain injury, meningoencephalitis, and brain tumors) or discharged to the home for palliative care.
- **Data extraction and synthesis:** Titles and abstracts were independently screened by 2 reviewers, with data extraction conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting guideline. Data were pooled using a random-effects model during meta-analysis.
- **Main outcomes and measures:** Age-corrected IQ scores and long-term psychological outcomes measured by scales such as the Child Behavior Checklist (higher scores indicate more behavioral problems) among children admitted to the PICU.

Stačí PICU přežít?

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- **Results:** Of 9193 records identified, 31 independent studies (5 randomized clinical trials and 26 observational studies) involving 7786 children (mean age, 7.3 years [95% CI, 6.2-8.4 years]; 4267 boys [54.8%]; race and ethnicity were not reported by all studies) admitted to the PICU were included. Overall, 1 of 19 children (5.3%) to 14 of 16 children (88.0%) previously admitted to the PICU were reported to have at least 1 psychological disorder. Studies that examined posttraumatic stress disorder reported that 6 of 60 children (10.0%) to 31 of 102 children (30.4%) met the diagnostic criteria for the disorder at 3 to 6 months of follow-up. Compared with healthy children, those admitted to the PICU had lower IQ scores at 1 to 2 years of follow-up (mean, 89.40 points [95% CI, 88.33-90.47 points] vs 100.70 points [95% CI, 99.43-101.97 points]; $P < .001$) and 3 to 5 years of follow-up (mean, 88.54 points [95% CI, 83.92-93.16 points] vs 103.18 [95% CI, 100.36-105.99 points]; $P < .001$) and greater total emotional and behavioral problems at 4 years of follow-up (mean, 51.69 points [95% CI, 50.37-53.01 points] vs 46.66 points [95% CI, 45.20-48.13 points]; $P < .001$).
- **Conclusions and relevance:** This systematic review and meta-analysis found a high burden of psychological sequelae among children previously admitted to the PICU, suggesting that risk stratification and early interventions are needed for high-risk groups.

Stačí PICU přežít?

Assessment of Long-term Psychological Outcomes After Pediatric Intensive Care Unit Admission: A Systematic Review and Meta-analysis

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Long-term Psychological Outcomes After Pediatric Intensive Care Unit Admission

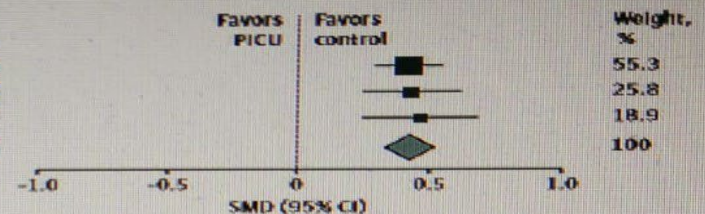
Original Investigation Research

Figure 2. Emotional and Behavioral Problems at 4-Year Follow-up

A Total problems

Source	PICU group		Control group		SMD (95% CI)
	Participants	Mean (SD)	Participants	Mean (SD)	
Jacobs et al, ⁵⁰ 2020	684	50.10 (11.90)	369	45.50 (9.90)	0.42 (0.29-0.55)
Mesotten et al, ²⁷ 2012	234	52.00 (10.44)	216	47.35 (11.19)	0.43 (0.24-0.62)
Verstraete et al, ⁷ 2016	449	52.50 (11.35)	100	47.50 (7.56)	0.46 (0.25-0.68)
Total	1367	NA	685	NA	0.43 (0.33-0.52)

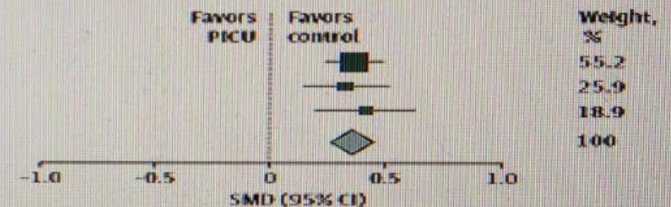
Heterogeneity: $\tau^2=0$; $\chi^2=0.13$; $df=2$; $P=.94$; $I^2=0\%$
 Test for overall effect: $Z=8.86$; $P<.001$



B Internalizing problems

Source	PICU group		Control group		SMD (95% CI)
	Participants	Mean (SD)	Participants	Mean (SD)	
Jacobs et al, ⁵⁰ 2020	684	51.00 (12.30)	369	46.70 (10.50)	0.37 (0.24-0.49)
Mesotten et al, ²⁷ 2012	234	52.70 (11.94)	216	48.70 (11.0)	0.33 (0.15-0.52)
Verstraete et al, ⁷ 2016	449	53.01 (11.35)	100	48.50 (7.56)	0.42 (0.20-0.64)
Total	1367	NA	685	NA	0.37 (0.27-0.46)

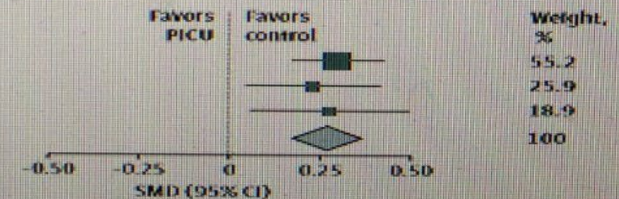
Heterogeneity: $\tau^2=0$; $\chi^2=0.33$; $df=2$; $P=.85$; $I^2=0\%$
 Test for overall effect: $Z=7.62$; $P<.001$



C Externalizing problems

Source	PICU group		Control group		SMD (95% CI)
	Participants	Mean (SD)	Participants	Mean (SD)	
Jacobs et al, ⁵⁰ 2020	684	48.80 (11.20)	369	45.60 (9.70)	0.30 (0.17-0.43)
Mesotten et al, ²⁷ 2012	234	49.65 (11.19)	216	47.05 (11.19)	0.23 (0.05-0.42)
Verstraete et al, ⁷ 2016	449	50.50 (11.35)	100	47.50 (7.56)	0.28 (0.06-0.50)
Total	1367	NA	685	NA	0.28 (0.18-0.37)

Heterogeneity: $\tau^2=0$; $\chi^2=0.34$; $df=2$; $P=.84$; $I^2=0\%$
 Test for overall effect: $Z=5.76$; $P<.001$



Results from random-effects model. Emotional and behavioral problems were assessed using the Child Behavior Checklist. NA indicates not applicable; PICU, pediatric intensive care unit; and SMD, standardized mean difference.

Stačí PICU přežít?

Dlouhodobá kvalita života dětí a jejich rodin – co (ne)víme

Nedostatek dat

Další studie

v pediatrické IM

Prevence následků

Společná platforma,

spolupráce týmů v PIM



MUDr. Jana DJAKOW, Ph.D.