

Insulinpumpentherapie bei Kindern und Jugendlichen - aktueller Überblick

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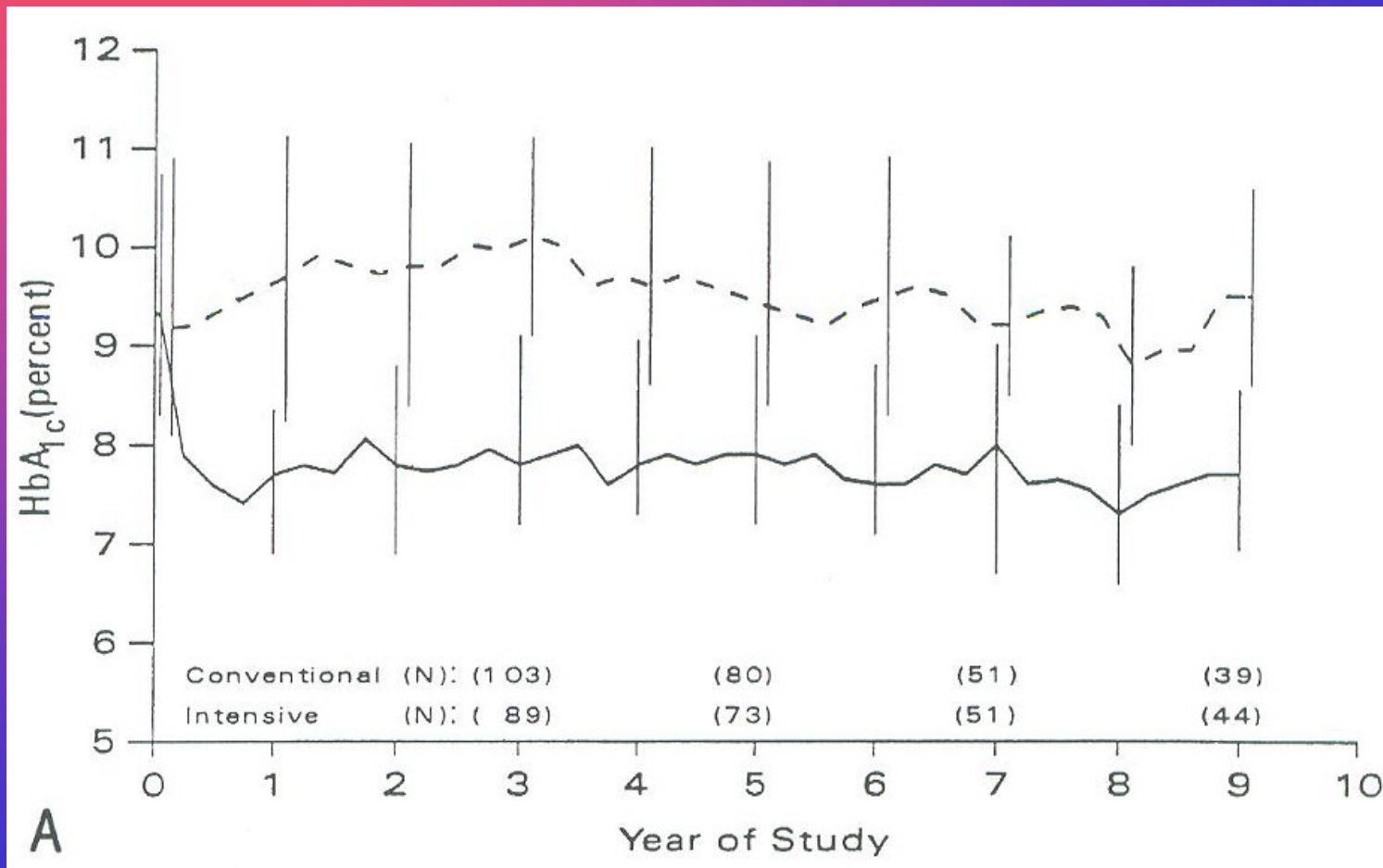
Herz- und Diabeteszentrum
Nordrhein-Westfalen

Universitätsklinik der Ruhr-Universität Bochum

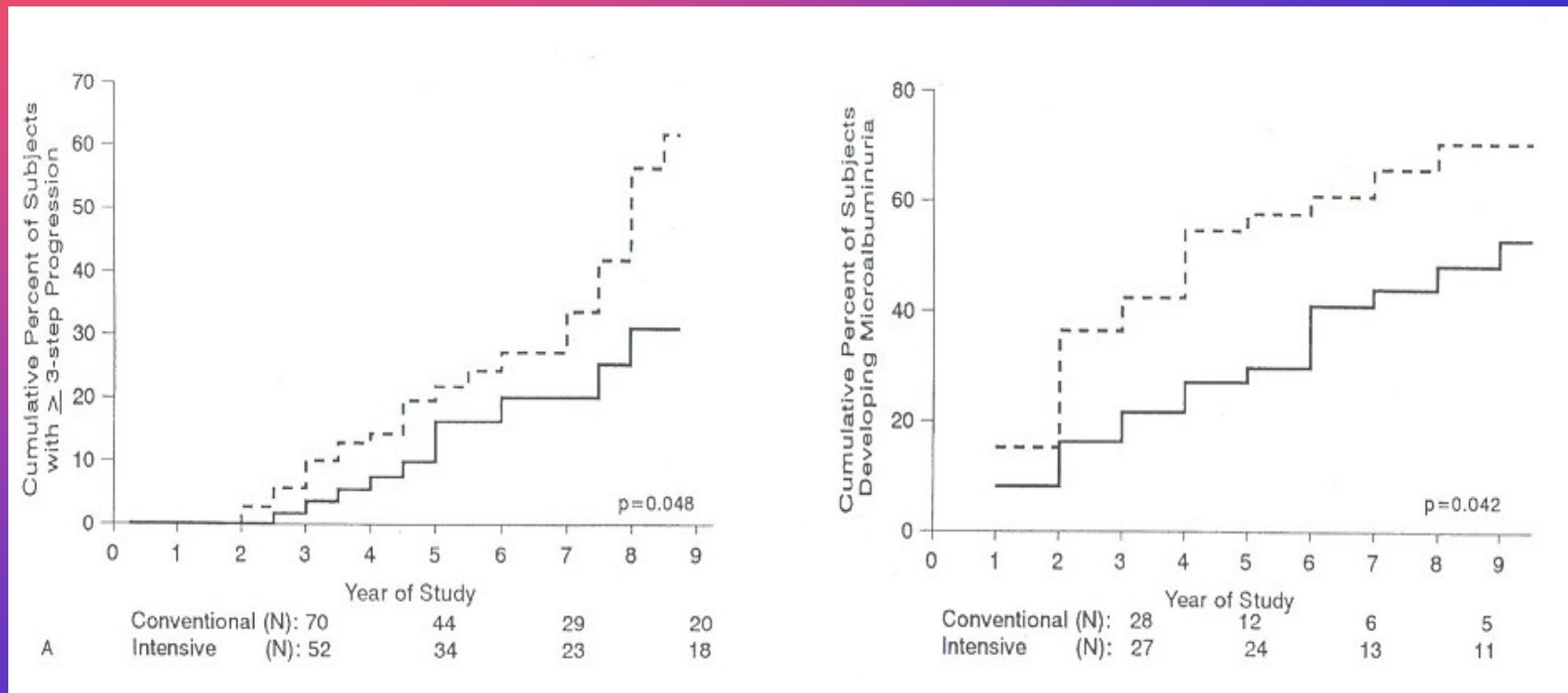
Therapieziele

- Normale Entwicklung:
körperlich, geistig, psychisch, sozial
- Gute Stoffwechseleinstellung
- Vermeidung akuter Komplikationen
(schwere Hypoglykämie / Ketoazidose)
- Vermeidung chronischer Komplikationen
(mikro- und makrovaskuläre Folgeschäden)

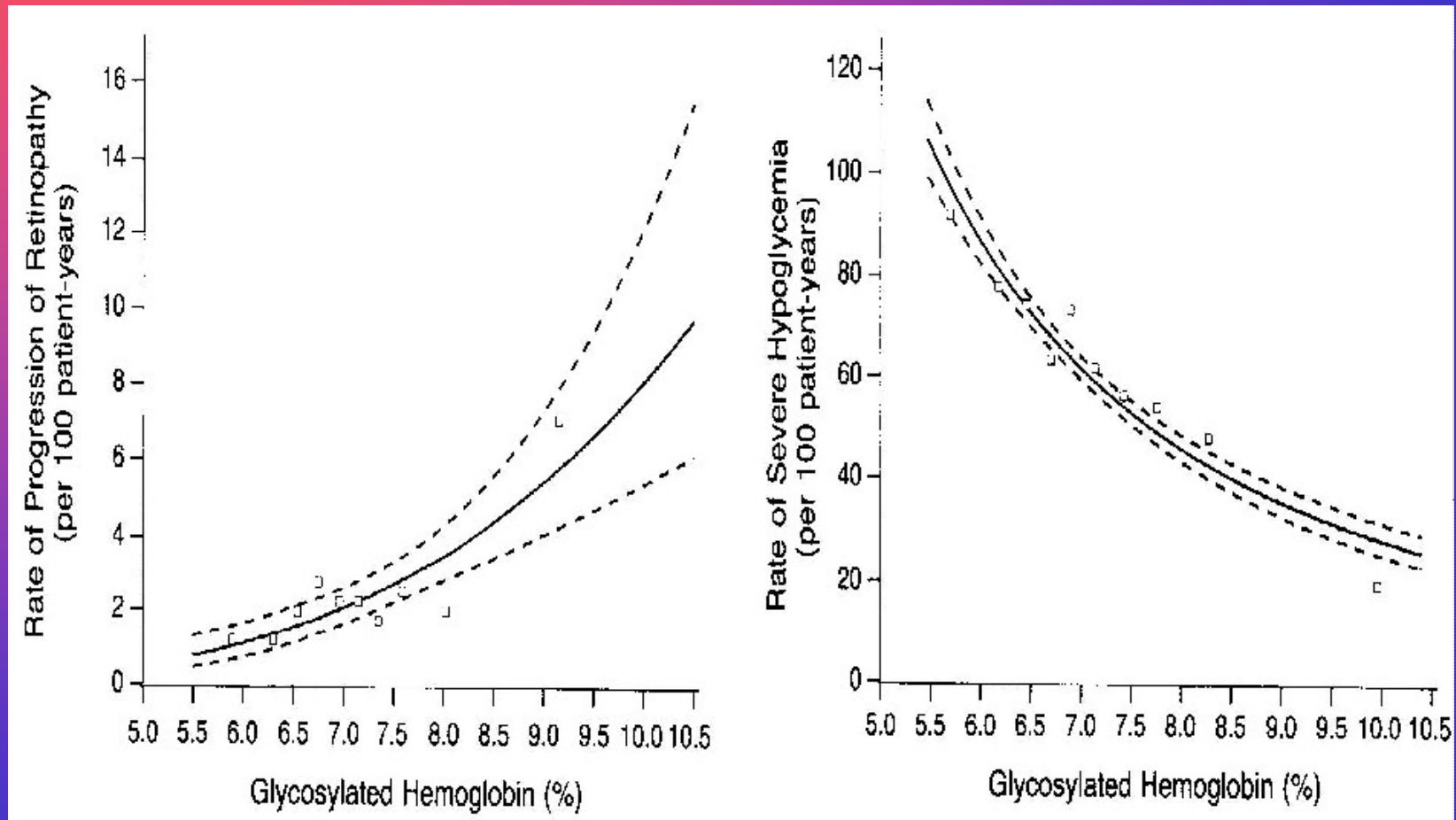
Ergebnisse der DCCT (adolescents)



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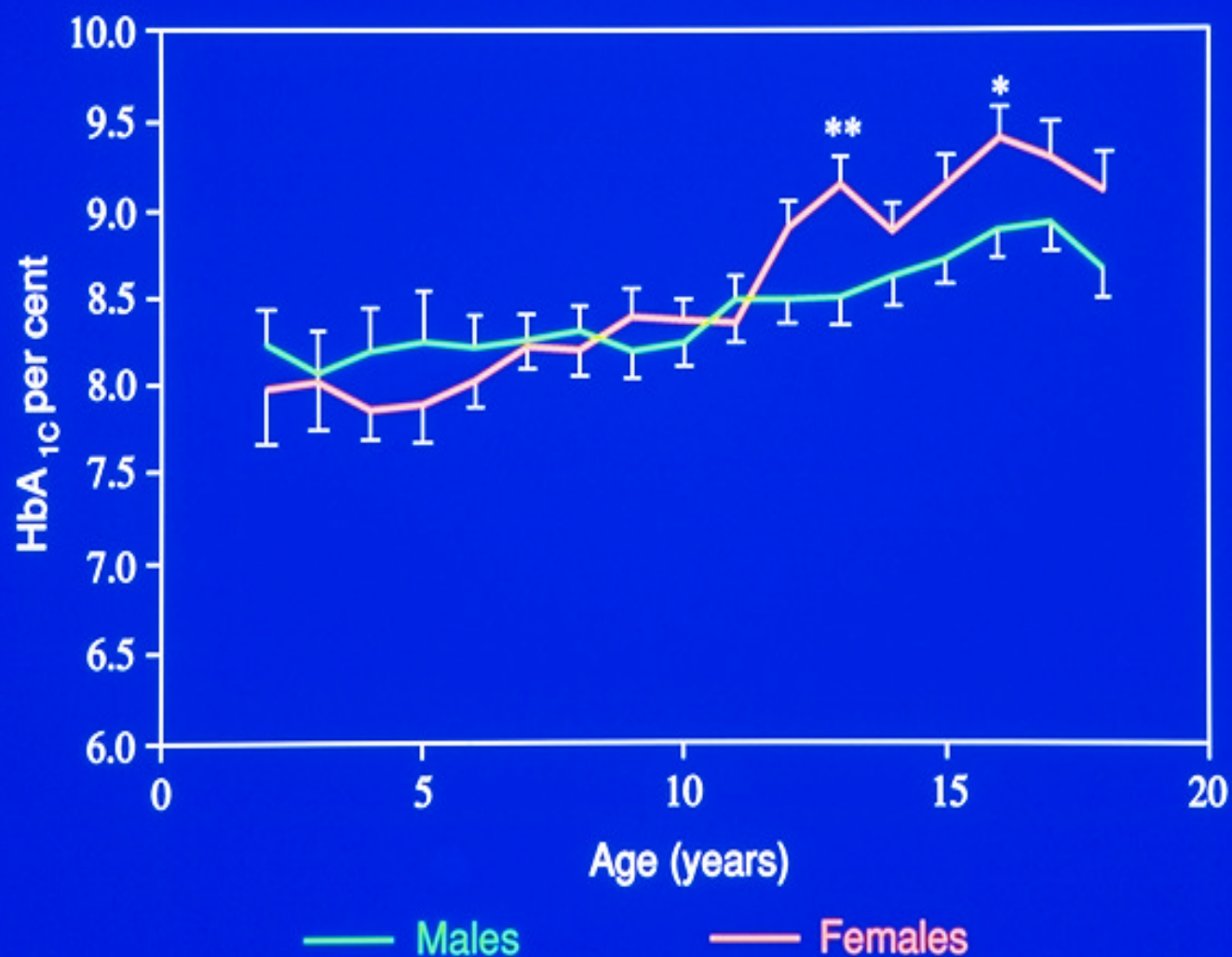
Ergebnisse der DCCT



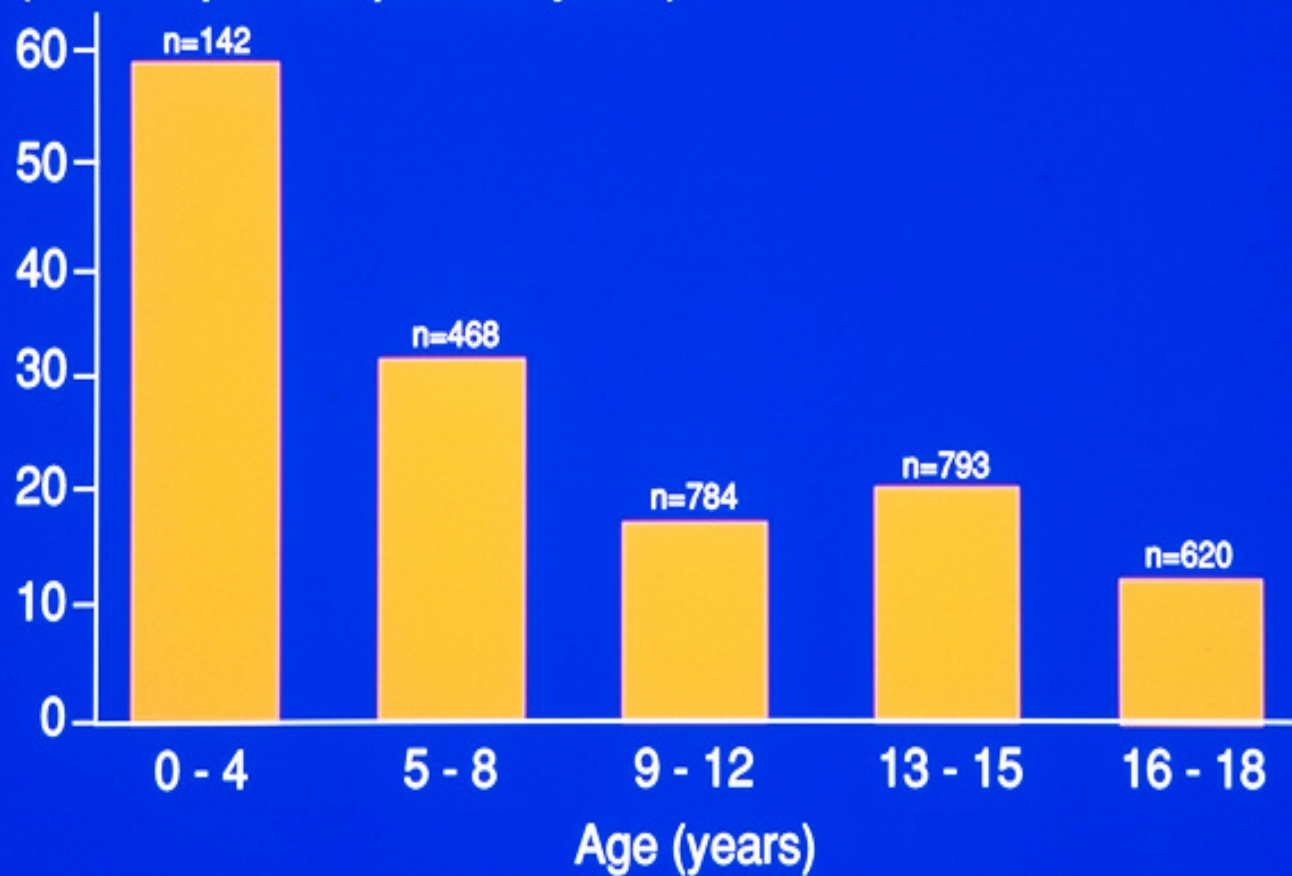
DCCT Research Group, N Engl J Med, 1993

International survey of childhood diabetes

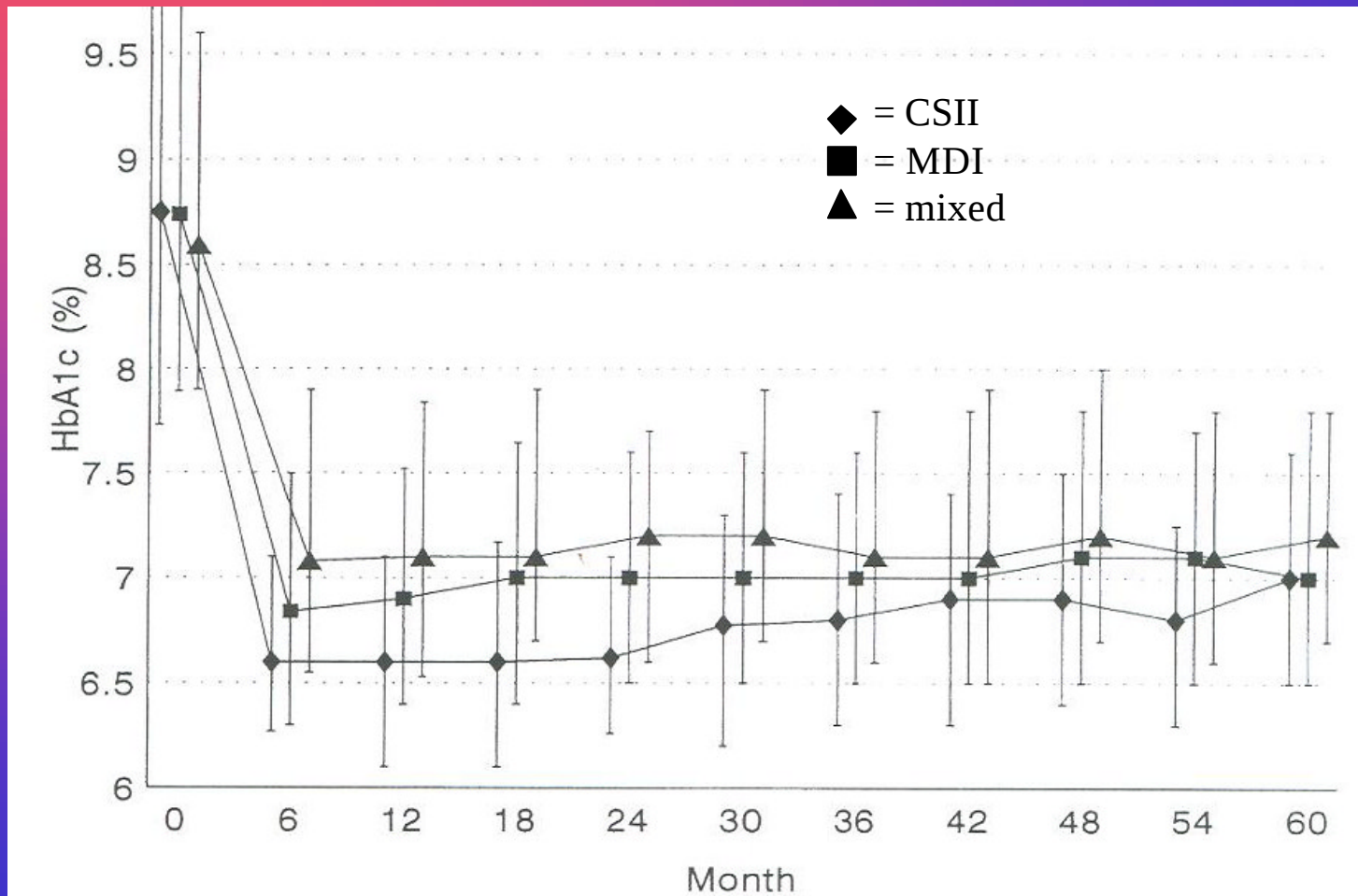
Average curves (1 SE)



Incidence of hypoglycemia
(number per 100 patients-years)



DCCT: unterschiedlich intensiv



ICT mit NPH vs. CSII

Table 2 - Clinical and metabolic parameters in 24 Type 1 diabetic patients (CSII group) during treatment with MDI with NPH and during CSII.

	MDI with NPH	CSII	<i>p</i>
BMI (kg/m ²)*	23.5±3.7	23.9±3.9	NS
HbA _{1c} (%)*	9.0±1.3	8.0±1.0	<0.001
MAGE (mg/dl)	119.8±67.3	60.7±26.6	<0.001
Cholesterol (mg/dl)*	207.3±28.5	198.5±32.2	NS
HDL-cholesterol (mg/dl)*	68.3±15.1	65.3±13	NS
Triglycerides (mg/dl)*	92.8±36.7	77±32.7	<0.05
Uric acid (mg/dl)*	4.0±1.3	4.0±1.2	NS
Insulin requirement (U/day)*	48±11.7	35.9±8.5	<0.001
Severe hypoglycaemic episodes (per patient/yr)	0.42±0.49	0.17±0.37	<0.05

*Mean±SD of four measures during 1-yr treatment. BMI: body mass index; MDI: multiple daily insulin injection; CSII: continuous s.c. insulin infusion; MAGE: mean amplitude of glycaemic excursion.

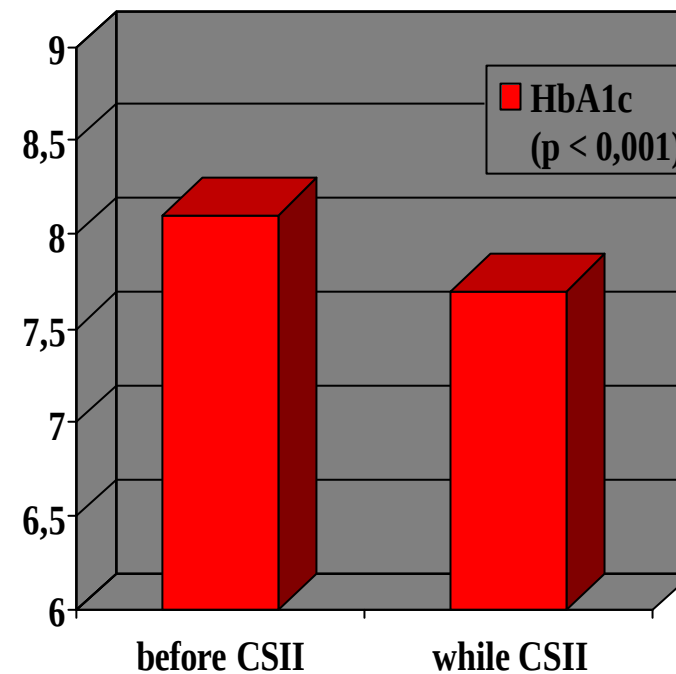
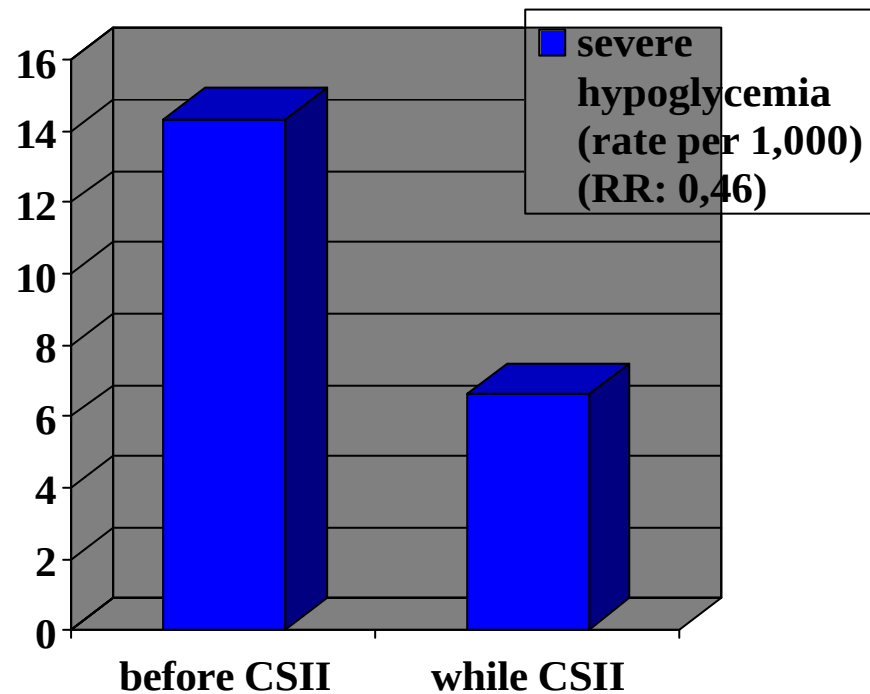
ICT mit Glargin vs. CSII

Table 4 - Differences between measured variables before and after active treatment in the CSII group and in the glargine group.

	CSII group (n=4)	Glargine group (n=24)	p
BMI (kg/m ²)	0.4±0.7	0.1±0.4	NS
HbA _{1c} (%)	-1.0±0.8	-0.7±0.6	NS
MAGE (mg/dl)	-59.1±25.3	-28.9±15.7	<0.001
Cholesterol (mg/dl)	-8.8±20.2	-2.5±24	NS
HDL-cholesterol (mg/dl)	-3±8.9	-1.4±8	NS
Triglycerides (mg/dl)	-15.8±36.7	-7.5±22.7	NS
Insulin requirement (U/day)	-12.1±6	-0.8±0.3	<0.001
Severe hypoglycaemic episodes (per patient/yr)	-0.25±0.52	-0.25±0.59	NS

BMI: body mass index; CSII: continuous s.c. insulin infusion; MAGE: mean amplitude of glycaemic excursion.

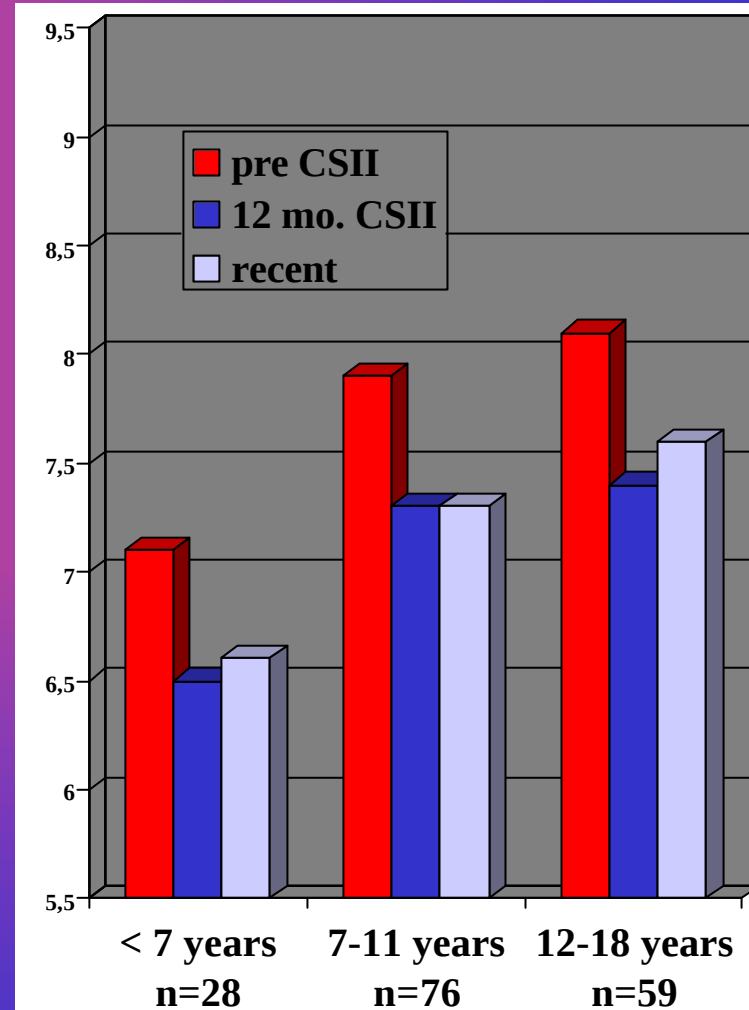
Wechsel von ICT zu CSII



Plotnick LP et al., Diabetes Care, 2003

CSII bei Kindern und Jugendlichen

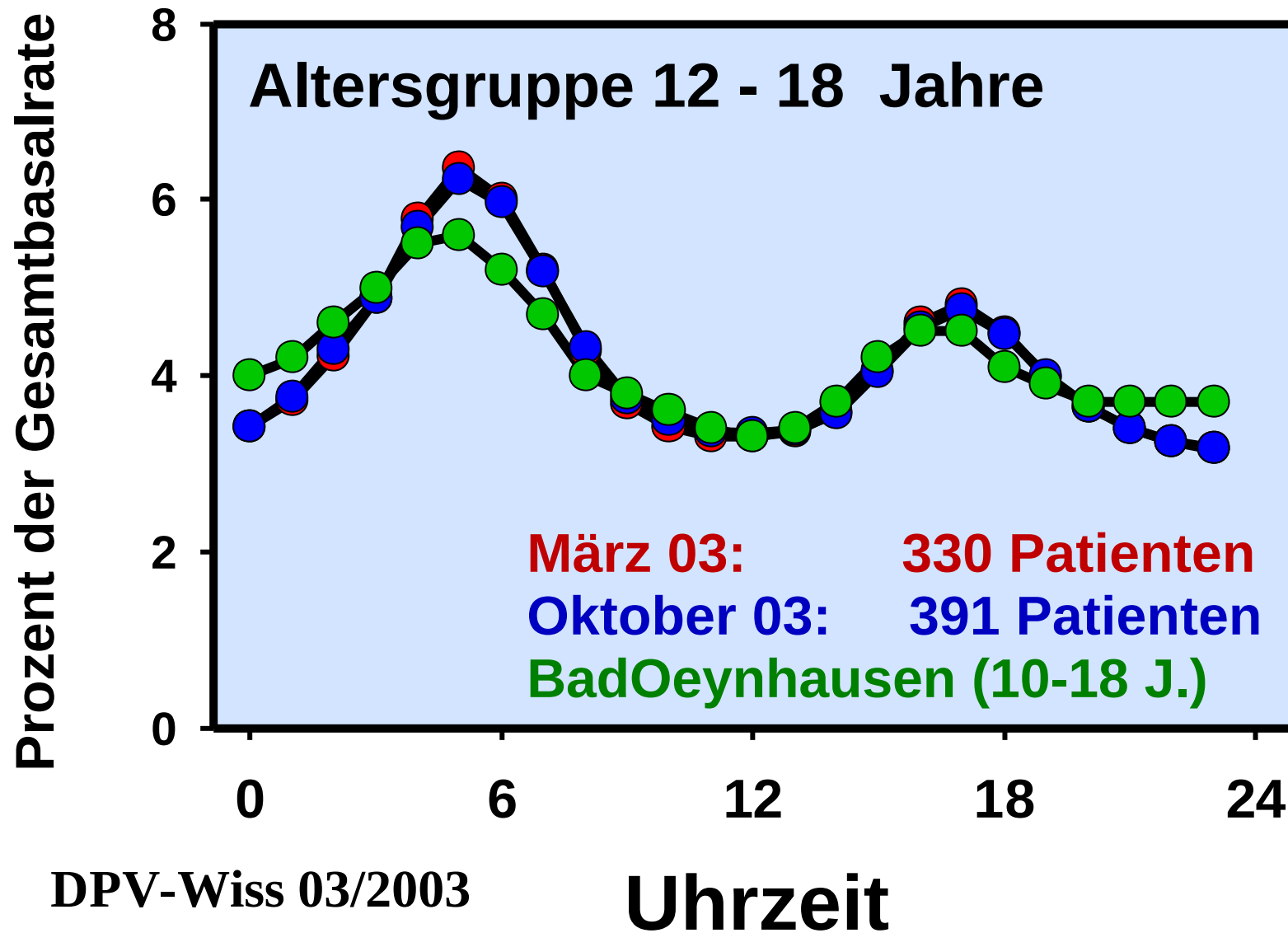
Frequency of severe hypoglycemia		
	pre CSII	12 mo. CSII
< 7 y.	11 (0,42)	5 (0,19)
7-11 y.	25 (0,33)	17 (0,22)
12-18 y.	20 (0,33)	16 (0,27)
Total	56 (0,35)	38 (0,24)



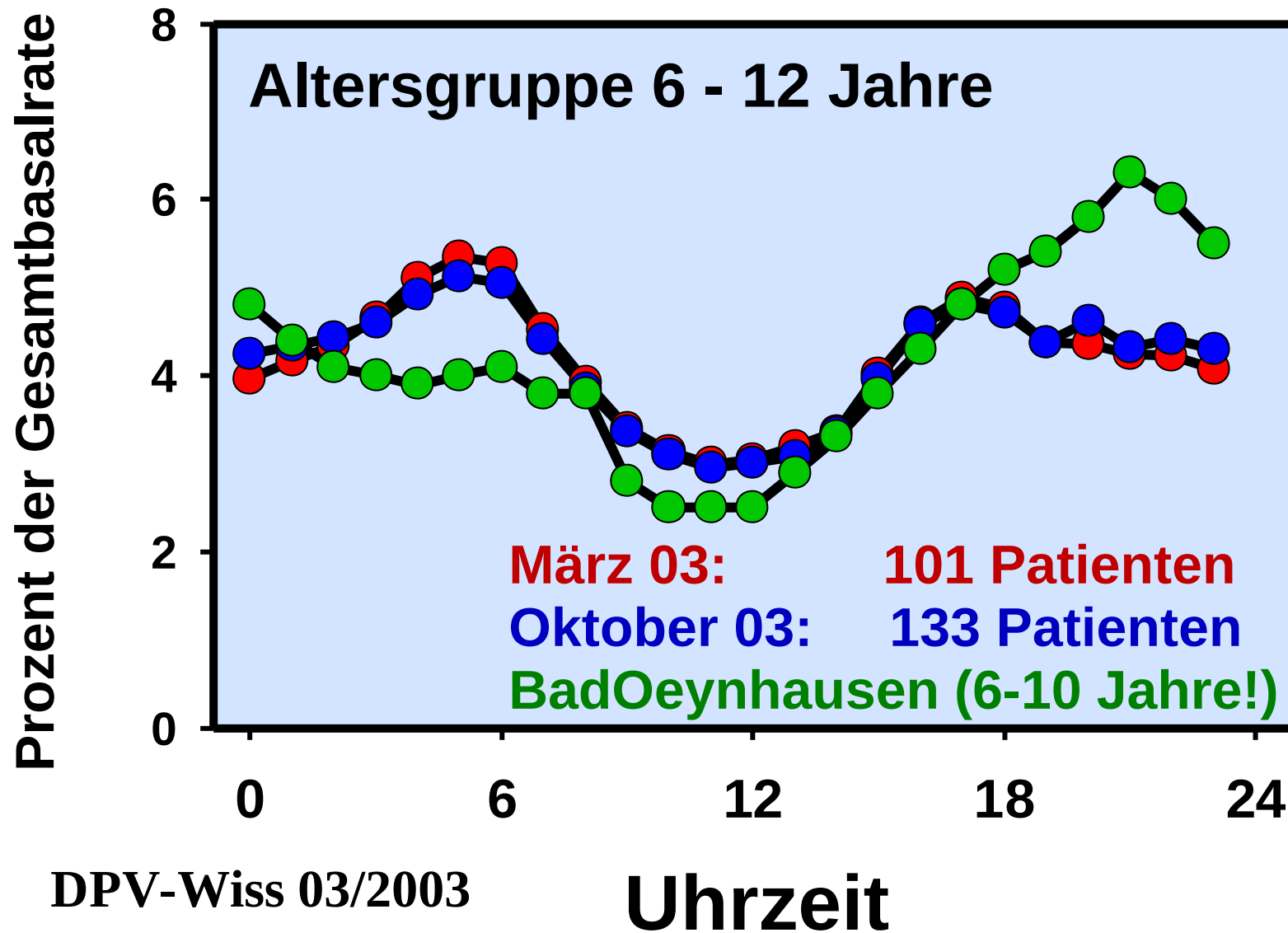
Mögliche Indikationen DPV-Auswahlliste

- Dawn-Phänomen
- Hypoglykämie
- Hyperglykämie
- Flexibilität
- Motivation
- Schwangerschaft
- Ultima Ratio / anderer Grund
- Kleinkind

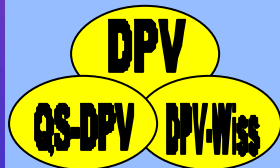
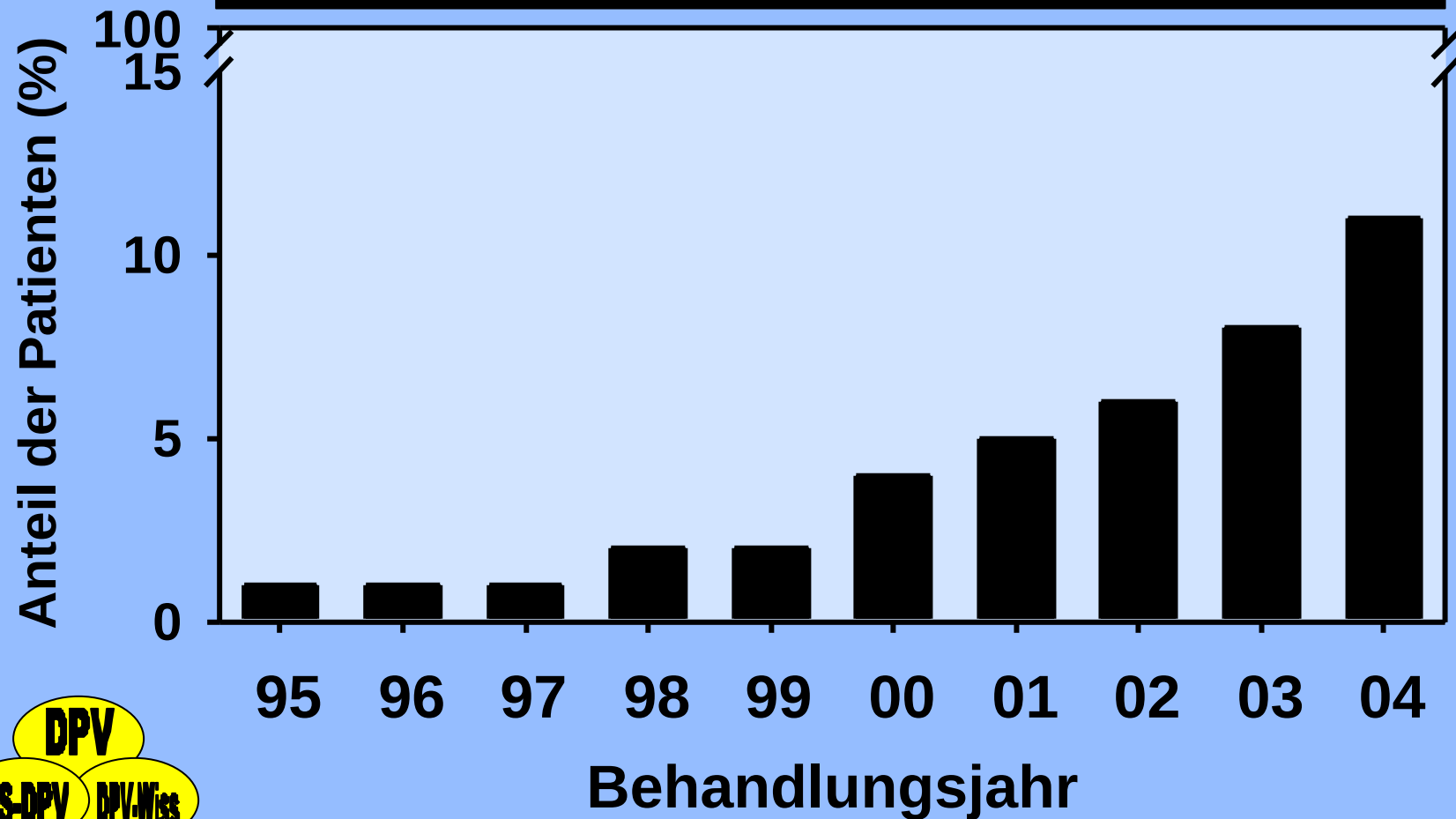
Basalrate Insulinpumpe



Basalrate Insulinpumpe



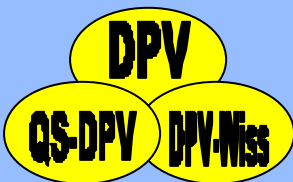
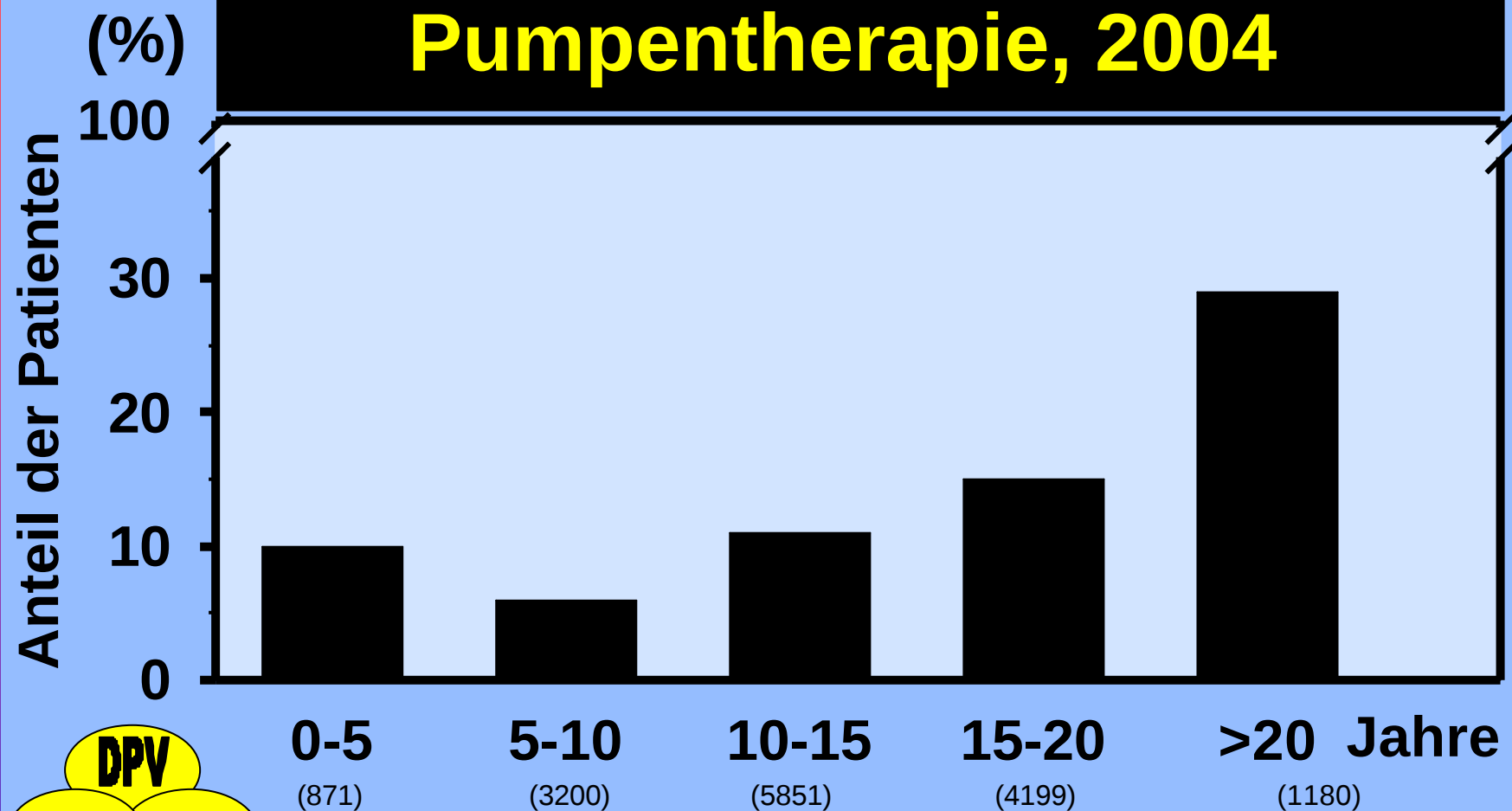
Insulinpumpentherapie



(Pädiatrie 03/2005)

Alter 0-20 Jahre, alle Institutionen

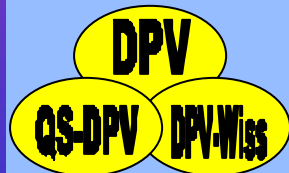
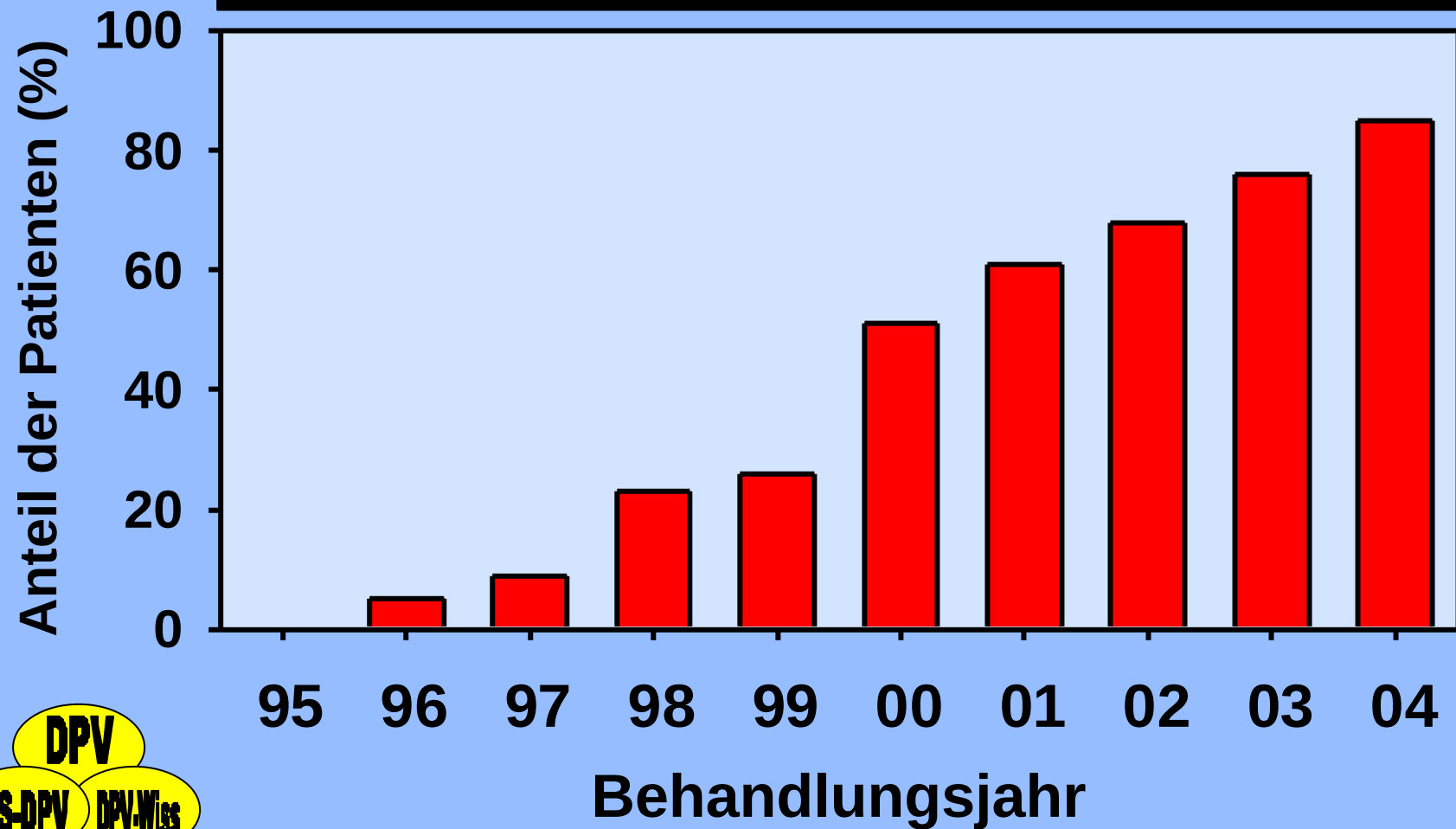
Pumpentherapie, 2004



(Pädiatrie 03/2005)

15 301 Patienten mit Typ-1-DM

Analoginsulin Pumpe



(Pädiatrie 03/2005)

Alter 0-20 Jahre, alle Institutionen