European Medicines Agency
Evaluation of Medicines for Human Use

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ASSESSMENT OF THE PAEDIATRIC NEEDS
DIABETES TYPE I AND II

DISCLAIMER

The Paediatric Working Party (PEG) is working to identify the needs in the different therapeutic areas where there should be research and development of medicinal products for children, either old (i.e. off patent) or new ones (including those under development). Products on the list are not in any order of priority.

The lists should not be viewed as a prescription tool nor as recommendations for treatment. Accuracy of data including in particular authorised doses cannot be guaranteed.
Information on existing marketing authorisations is very limited and therefore information under "authorised" includes the indication in broad term (only related to chemotherapy), the lower age group authorised in at least one Member State, the authorised dose(s) (if authorised for use in patients less than 18 years of age) and formulation(s) in at least in one Member State.

Please refer to the EMEA/PEG procedure for identifying the paediatric needs for further information.

Comments from third parties are expected especially to complete and or update the list as necessary.

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Comments should be provided using this template to PEG Secretariat: peg@emea.europa.eu
Fax +44 20 7523 7040.

7 Westferry Circus, Canary Wharf, London, E14 4HB, UK
Tel: (44-20) 74 18 84 00, Fax: (44-20) 74 18 84 16
E-mail: mail@emea.europa.eu http://www.emea.europa.eu

For clarity, examples of brand names are stated at the end of this list	
RECOMBINANT INSULINS	
Short-acting insulin-analogues	
INSULIN ASPART	
Authorised indication	Diabetes mellitus
Authorised age group	No age limit specified (no studies < 2 years)
Authorised dose	Individual
Authorised formulation	Solution for injection
Needs	PK, PD, Efficacy and Safety in children < 2 years needed (widely used in insulin pumps and for injections).
INSULIN LISPRO	
Authorised indication	Diabetes mellitus
Authorised age group	No age limit specified (should only be used in children in preference of soluble insulin when a fast action of insulin might be beneficial)
Authorised dose	Individual
Authorised formulation	Solution for injection
Needs	PK, PD, Efficacy and Safety < 2 years needed (widely used in insulin pumps)
INSULIN GLULISINE	
Authorised indication	Diabetes mellitus
Authorised age group	> 18 years
Authorised dose	-
Authorised formulation	Solution for injection
Needs	PK, PD, Efficacy and Safety < 18 years.
Long-acting insulin-analogues	
INSULIN GLARGINE	
Authorised indication	Diabetes mellitus
Authorised age group	Children > 6 years
Authorised dose	Individual
Authorised formulation	Solution for injection
Needs	Efficacy and Safety in morning dosing needed, since used in the morning for children (Efficacy and Safety demonstrated only when given in the evening). PK, PD, Efficacy and Safety < 6 years Pen devices needed in all Member States.
INSULIN DETEMIR	
Authorised indication	Diabetes mellitus
Authorised age group	Children > 6 years
Authorised dose	Individual
Authorised formulation	Solution for injection in a cartridge
Needs	PK, PD, Efficacy and Safety < 6 years (widely used).
Human insulins	
SHORT-ACTING HUMAN INSULINS	
Authorised indication	Diabetes mellitus
Authorised age group	No age limit specified
Authorised dose	Individual

Authorised formulation	Solution for injection
Needs	PK, PD, Efficacy and Safety < 6 years (widely used)
INTERMEDIATE AND LONG-ACTING HUMAN INSULINS	
Authorised indication	Diabetes mellitus
Authorised age group	No age limit specified
Authorised dose	Individual
Authorised formulation	Solution for injection
Needs	PK, PD, Efficacy and Safety in all age groups.
Mixed insulins (human insulins)	
HUMAN INSULIN + INSULIN IN ISOPHANE SUSPENSION	
Authorised indication	Diabetes mellitus
Authorised age group	No age limit specified
Authorised dose	Individual
Authorised formulation	Solution for injection
Needs	PK, PD, Efficacy and Safety < 18 years Replacable cartridges and disposable devices with proper dosage adjustments (0.5-unit) needed.
Mixed insulins (insulin analogues)	
ASPART + ASPART CRYSTALLIZED W/ PROTAMINE	
Authorised indication	Diabetes mellitus
Authorised age group	>18 years
Authorised dose	Individual
Authorised formulation	Suspension for injection in cartridge
Needs	PK, PD, Efficacy and Safety < 18 years Replacable cartridges and disposable devices with proper dosage adjustments (0.5-unit) needed
LISPRO + PROTAMINE SUSPENSION OF LISPRO	
Authorised indication	Diabetes mellitus
Authorised age group	No age limit specified (should only be used in children in preference of soluble insulin when a fast action of insulin might be beneficial)
Authorised dose	Individual
Authorised formulation	Solution for injection
Needs	PK, PD, Efficacy and Safety < 18 years. Replacable cartridges and disposable devices with proper dosage adjustments (0.5-unit) needed
Inhaled insulins	
HUMAN INSULIN	
Authorised indication	Diabetes mellitus
Authorised age group	>18 years
Authorised dose	-
Authorised formulation	Powder for inhalation
Needs	PK, PD, Efficacy and Safety < 18 years. Need for long-term safety studies.
ORAL ANTIDIABETIC DRUGS	
Biguanides	
METFORMIN	
Authorised indication	Diabetes type II

Authorised age group	> 10 years (France)
Authorised dose	Initially 500mg daily, adjusted according to response
Authorised formulation	Tablets, oral solution
Needs	Age appropriate formulation should be made available in all Member States. Long-term safety > 10 years
α-Glucosidases-Inhibitors	
ACARBOSE	
Authorised indication	Diabetes type II
Authorised age group	> 15 years (France)
Authorised dose	3 x 50 mg daily
Authorised formulation	Tablets
Needs	PK, PD, Efficacy and Safety > 7 years also for Diabetes Mellitus type I and other potential indications (dumping syndrome and postprandial hypoglycemia, Impaired Glucose Tolerance)
Meglitinides	
REPAGLINIDE	
Authorised indication	Diabetes type II
Authorised age group	>18 years (contraindicated in children < 12 years)
Authorised dose	-
Authorised formulation	Tablets
Needs	Extension of indication to MODY (maturity onset diabetes of the Young)

Overall need for insulins:

There is an urgent need for the development of age-appropriate devices with proper dosage adjustment for the use of insulins in the paediatric populations. Age appropriate devices should be made available in all Member States.
Long-term data on the use of insulins in children with specific regard to the development of insulin antibodies is needed for all insulins.

PRODUCTS CONSIDERED BY PEG TO BE DEVOID OF THERAPEUTIC INTEREST IN CHILDREN

SULPHONYLUREAS
TOLBUTAMIDE
GLIBENCLAMIDE
GLIMEPIRIDE
GLIPIZIDE
GLICLAZIDE

<u>New developments:</u>

Methods of delivering **insulin orally** are being developed (spray, capsules etc.). Needs of children and adolescents should not be forgotten while planning and conducting these studies. There is also need for long-term safety studies.

Information on synthetic analoges of mealtime insulins in patients with type 1 and 2 diabetes in children and adolescents is lacking In theory it might be useful also in the use of children and adolescents since it lowers postprandial glucose.