MED axioms

MED001+0.ax Physiology Diabetes Mellitus type 2

Physiological mechanisms of diabetes mellitus type 2
∀x: ¬gt(x, x) fof(irreflexivity_gt, axiom)
∀x, y, z: (gt(x, y) and gt(y, z)) → gt(x, z) fof(transitivity_gt, axiom)
∀x0: (bcapacityyn(x0) or bcapacityyn(x0)) fof(xorcapacity1, axiom)
∀x0: (¬bcapacityyn(x0) or ¬bcapacityyn(x0)) fof(xorcapacity2, axiom)
∀x0: (bcapacityyn(x0) or ¬bcapacityyn(x0)) fof(xorcapacity3, axiom)
∀x0: (¬bcapacityyn(x0) or bcapacityyn(x0)) fof(xorcapacity4, axiom)
∀x0: (conditionhyper(x0) or conditionhypo(x0)) fof(xorcondition1, axiom)
∀x0: (¬conditionhyper(x0) or ¬conditionhypo(x0)) fof(xorcondition2, axiom)
∀x0: (¬conditionhyper(x0) or ¬conditionhypo(x0)) fof(xorcondition3, axiom)
∀x0: (¬conditionhyper(x0) or ¬conditionhypo(x0)) fof(xorcondition4, axiom)
∀x0: (∀x: (¬gt(x0, x1) ⇒ drugi(x1)) ∨ ∀x1: (¬gt(x0, x1) ⇒ (uptakelg(x1) and uptakepg(x1)))) fof(insulin_effect, axiom)
∀x0, x1: (¬gt(x0, x1) ⇒ (uptakelg(x1) ⇒ ¬relesalg(x1))) fof(liver_glucose, axiom)
∀x0: (¬gt(x0, x1) ⇒ drugsu(x1)) fof(sulfonylurea, axiom)
∀x0: (¬gt(x0, x1) ⇒ bcapacitex(x1)) fof(biguanide_effect, axiom)
∀x0: (¬gt(x0, x1) ⇒ bcapacityex(x0) and bigu27(x0) and ∀x1: (gt(x0, x1) ⇒ conditionhyper(x1))) fof(biguanide_effect, axiom)
∀x1: (¬gt(x0, x1) ⇒ conditionnormo(x1)) fof(su_cure1, axiom)
∀x0: (¬gt(x0, x1) ⇒ ¬relesalg(x1)) fof(treatmentsex, conjecture)
∀x1: (¬gt(x0, x1) ⇒ conditionnormo(x1)) fof(su_cure2, axiom)
∀x0: (¬gt(x0, x1) ⇒ ¬relesalg(x1) and bcapacityyn(x0) and ¬bigu27(x0) and ∀x1: (gt(x0, x1) ⇒ conditionhyper(x1))) fof(biguanide_effect, axiom)
∀x0: (¬gt(n0, x0) ⇒ (drugbg(x0) and drugsu(x0))) and ∀x0: (gt(n0, x0) ⇒ conditionhyper(x0)) and bcapacityyn(x0) ⇒ ∀x0: (¬gt(n0, x0) ⇒ conditionnormo(x0)) fof(treatmentse, conjecture)
MED002+1.p Combined biguanide and sulfonylurea treatment

Whether or not patients with nearly-exhausted production of glucose in the B-cells are cured with a biguanide and sulfonylurea combination therapy.
include(‘Axioms/MED001+0.ax’)
∀x0: (¬gt(n0, x0) ⇒ (drugbg(x0) and drugsu(x0))) and ∀x0: (gt(n0, x0) ⇒ conditionhyper(x0)) and bcapacityyn(x0) ⇒ ∀x0: (¬gt(n0, x0) ⇒ conditionnormo(x0)) fof(treatmentse, conjecture)
MED003+1.p Insulin treatment

Whether or not patients with exhausted production of glucose in the B-cells are at least not hyperglycaemic afterwards.
include(‘Axioms/MED001+0.ax’)
∀x0: (¬gt(n0, x0) ⇒ (drugi(x0) and uptakepg(x0))) and ∀x0: (gt(n0, x0) ⇒ conditionhyper(x0)) and bcapacityyn(x0) ⇒ ∀x0: (¬gt(n0, x0) ⇒ conditionnormo(x0) or conditionhypo(x0)) fof(treatmentex, conjecture)
MED004+1.p No suitable therapy for patients with exhausted B-cells

There is not a suitable therapy for patients with exhausted B-cells available.
include(‘Axioms/MED001+0.ax’)
∀x0: (¬gt(n0, x0) ⇒ (drugi(x0) and (drugbg(x0) and drugsu(x0)))) and ∀x0: (gt(n0, x0) ⇒ conditionhyper(x0)) and bcapacityyn(x0) ⇒ ∀x0: (¬gt(n0, x0) ⇒ conditionnormo(x0)) fof(treatmentsex_sub, conjecture)
MED005+1.p Unsuccessful diet treatment

Unsuccessful treatment of diet requires that medical management moves to at least oral diabetics.
include(‘Axioms/MED001+0.ax’)
include(‘Axioms/MED001+1.ax’)
1
(s_0(n_0) \text{ and } \forall x_0: (gt(n_0, x_0) \Rightarrow \text{conditionhyper}(x_0))) \Rightarrow \exists x_0: (\neg gt(n_0, x_0) \text{ and } \forall x_1: (gt(x_0, x_1) \Rightarrow \text{conditionhyper}(x_1))) \Rightarrow \text{fof(transs0s1, conjecture)}

**MED006+1.p**  
**Unsuccessful s1-qilt27 treatment - single oral anti-diabetic**

Unsuccessful treatment with single oral anti-diabetic for patients with QI less than 27 deductively follows in completed theory.

include('Axioms/MED001+0.ax')
include('Axioms/MED001+1.ax')
(s_1(n_0) \text{ and } \forall x_0: (gt(n_0, x_0) \Rightarrow \text{conditionhyper}(x_0)) \text{ and } \neg \text{bcapacitysn}(n_0) \text{ and } qilt_{27}(n_0)) \Rightarrow \neg \forall x_0: (\neg gt(n_0, x_0) \Rightarrow \text{conditionnormo}(x_0)) \Rightarrow \text{fof(unsuccessfuls1_qilt_{27}, conjecture)}

**MED007+1.p**  
**Unsuccessful s1-qilt27 treatment next step**

After unsuccessful treatment with single oral anti-diabetic for patients with QI less than 27 medical management moves to next step.

include('Axioms/MED001+0.ax')
include('Axioms/MED001+1.ax')
(s_1(n_0) \text{ and } \forall x_0: (gt(n_0, x_0) \Rightarrow \text{conditionhyper}(x_0)) \text{ and } \neg \text{bcapacitysn}(n_0) \text{ and } qilt_{27}(n_0)) \Rightarrow \exists x_0: (\neg gt(n_0, x_0) \Rightarrow \text{conditionnormo}(x_0)) \Rightarrow \text{fof(unsuccessfuls1_qilt_{27}, conjecture)}

**MED008+1.p**  
**Unsuccessful s1-qige27 treatment**

Unsuccessful treatment with single oral anti-diabetic for patients with QI greater equal than 27 deductively follows in completed theory.

include('Axioms/MED001+0.ax')
include('Axioms/MED001+1.ax')
(s_1(n_0) \text{ and } \forall x_0: (gt(n_0, x_0) \Rightarrow \text{conditionhyper}(x_0)) \text{ and } \neg \text{bcapacitysn}(n_0) \text{ and } qigt_{27}(n_0)) \Rightarrow \neg \forall x_0: (\neg gt(n_0, x_0) \Rightarrow \text{conditionnormo}(x_0)) \Rightarrow \text{fof(unsuccessfuls1_qige_{27}, conjecture)}

**MED009+1.p**  
**Unsuccessful s1-qige27 treatment - next step**

After unsuccessful treatment with single oral anti-diabetic for patients with QI greater equal than 27 medical management moves to next step.

include('Axioms/MED001+0.ax')
include('Axioms/MED001+1.ax')
(s_1(n_0) \text{ and } \forall x_0: (gt(n_0, x_0) \Rightarrow \text{conditionhyper}(x_0)) \text{ and } \neg \text{bcapacitysn}(n_0) \text{ and } qigt_{27}(n_0)) \Rightarrow \exists x_0: (\neg gt(n_0, x_0) \Rightarrow \text{conditionnormo}(x_0)) \Rightarrow \text{fof(unsuccessfuls1_qige_{27}, conjecture)}

**MED010+1.p**  
**Unsuccessful s1-qigt27 treatment - two oral anti-diabetic**

After unsuccessful treatment with two oral anti-diabetic medical management moves to next step.

include('Axioms/MED001+0.ax')
include('Axioms/MED001+1.ax')
(s_2(n_0) \text{ and } \forall x_0: (gt(n_0, x_0) \Rightarrow \text{conditionhyper}(x_0)) \text{ and } \text{bcapacityex}(n_0)) \Rightarrow \exists x_0: (\neg gt(n_0, x_0) \Rightarrow \text{conditionnormo}(x_1) \text{ and } \text{bcapacityex}(x_0)) \Rightarrow \text{fof(unsuccessfuls2, conjecture)}

**MED011+1.p**  
**Satisfiability of medical subject headings axioms**

include('Axioms/MED002+0.ax')

**MED012+1.p**  
**Physiology Diabetes Mellitus type 2**

include('Axioms/MED001+0.ax')
include('Axioms/MED001+1.ax')