perform a Bayesian update to each mathematical model, as a function of the observed patient response data, to create a corresponding updated patient-specific mathematical model;

perform Bayesian forecasting to forecast a patient-specific response for each of a second plurality of proposed dosing regimens, as a function of each updated patient-specific model;

select, from a set of forecasted patient-specific responses, a recommended patient-specific dosing regimen suitable for the specific patient, the recommended patient-specific dosing regimen being selected to achieve the predefined target response; and

provide, as output from the system, the recommended patient-specific dosing regimen.

39. A method for providing a patient-specific dosing regimen for treatment with a medication using a computerized medication dosing regimen recommendation system, the system comprising a microprocessor, a memory, and at least ~~one~~ two mathematical models, each mathematical model describing response profiles for a population of patients treated with the medication, each model further describing typical patient responses as a function of covariate patient factors, the method comprising operating the system to:

process ~~the~~ each respective model to perform Bayesian forecasting to forecast a typical patient response for each of a first plurality of proposed dosing regimens as a function of the respective model;

select, from a set of forecasted typical patient responses, a recommended typical dosing regimen suitable for a typical patient having the specific patient's characteristics, the recommended typical dosing regimen being selected to achieve a predefined target response;

provide, as output from the system, the recommended typical dosing regimen;

receive data reflecting an observed response of the specific patient to an administered dosing regimen;

perform a Bayesian update to each mathematical model, as a function of the observed patient response data, to create a corresponding updated patient-specific mathematical model; and

provide, as output from the system, the updated patient-specific mathematical model.

40. A system for providing a patient-specific dosing regimen for treatment with a medication, the system comprising:

a microprocessor;

a memory operatively connected to the microprocessor; and

a plurality of mathematical models, each of the plurality of mathematical models describing response profiles for a population of patients treated with the medication, each model further describing typical patient responses as a function of covariate patient factors; and

microprocessor executable instructions stored in the memory for operating the system to carry out the method of claim 1.

41. A system for providing a patient-specific dosing regimen for treatment with a medication, the system comprising:

a microprocessor;

a memory operatively connected to the microprocessor; and

a plurality of mathematical models, each of the plurality of mathematical models describing response profiles for a population of patients treated with the medication, each model further describing typical patient responses as a function of covariate patient factors; and

microprocessor executable instructions stored in the memory for operating the system to carry out the method of claim 34.

42. A system for providing a patient-specific dosing regimen for treatment with a medication, the system comprising:

a microprocessor;

a memory operatively connected to the microprocessor; and

a plurality of mathematical models, each of the plurality of mathematical models describing response profiles for a population of patients treated with the medication, each model further describing typical patient responses as a function of covariate patient factors; and

microprocessor executable instructions stored in the memory for operating the system to carry out the method of claim 35.

43. A system for providing a patient-specific dosing regimen for treatment with a medication, the system comprising:

a microprocessor;

a memory operatively connected to the microprocessor; and

a plurality of mathematical models, each of the plurality of mathematical models describing response profiles for a population of patients treated with the medication, each model further describing typical patient responses as a function of covariate patient factors; and

microprocessor executable instructions stored in the memory for operating the system to carry out the method of claim 36.

44. A system for providing a patient-specific dosing regimen for treatment with a medication, the system comprising:

a microprocessor;

a memory operatively connected to the microprocessor; and

a plurality of mathematical models, each of the plurality of mathematical models describing response profiles for a population of patients treated with the medication, each model further describing typical patient responses as a function of covariate patient factors; and

microprocessor executable instructions stored in the memory for operating the system to carry out the method of claim 37.

45. A system for providing a patient-specific dosing regimen for treatment with a medication, the system comprising:

a microprocessor;

a memory operatively connected to the microprocessor; and

a plurality of mathematical models, each of the plurality of mathematical models describing response profiles for a population of patients treated with the medication, each model further describing typical patient responses as a function of covariate patient factors; and

microprocessor executable instructions stored in the memory for operating the system to carry out the method of claim 38.

46. A system for providing a patient-specific dosing regimen for treatment with a medication, the system comprising:

a microprocessor;

a memory operatively connected to the microprocessor; and

a plurality of mathematical models, each of the plurality of mathematical models describing response profiles for a population of patients treated with the medication, each model further describing typical patient responses as a function of covariate patient factors; and

microprocessor executable instructions stored in the memory for operating the system to carry out the method of claim 39.

47. The method of claim 1, wherein the recommended patient-specific dosing regimen includes at least a recommended dosage amount and a recommended time interval between doses that are specific to the patient.