

CLAIMS:

1. An infusion pump configured for pumping fluid through a tubular administrative set at a desired flow rate over a specified duration, comprising:

a pumping mechanism constructed and arranged for releasably receiving the tubular administrative set and for exerting a pulsing force on the tubular administrative set, thus pressurizing a portion of the tubular administrative set for creating a flow of fluid from an outlet of the tubular administrative set; and

a controller connected to said pumping mechanism and configured for operating said pumping mechanism;

said controller being configured to:

determine a first pulse frequency based on a tube diameter of the administrative set, a volume of fluid infused over a portion of the specified duration and the desired flow rate;

output a control signal to said pumping mechanism for operating said pumping mechanism based on determining said first pulse frequency based on the desired flow rate;

receive an input from a sensor representing a volume of fluid infused from the tubular administrative set;

receive an input as to the type of material used to form the administrative set; and

adjust the first pulse frequency based on the volume of fluid

infused to provide a second pulse frequency, said second pulse frequency being different from said first pulse frequency;

wherein said adjusting the first pulse frequency comprises adjusting the first pulse frequency using a Tubing Degradation Function compiled based on a comparison of historical data of administrative set flow rate accuracy in terms of % error with volume of fluid infused compared with target pump volume, such that said second pulse frequency maintains the desired volume by compensating for the degradation of the material of the administrative set.

2. The infusion pump of claim 1, wherein said adjusting said first pulse frequency includes at least one of increasing and decreasing said first pulse frequency.

3. The infusion pump of claim 1, wherein said controller is further configured to:

determine the volume of fluid infused over the portion of the specified duration based on the received input.

4. The infusion pump of claim 3, further comprising:
a sensor connected to said pumping mechanism for sensing the volume of fluid infused from the tubular administrative set.

5. The infusion pump of claim 1,
wherein said controller comprises:
a processor;
a memory connected to said processor; and
5 non-transitory instructions stored in said memory and executable by said
processor for causing said processor to:
determine said second pulse frequency based on a volume of fluid
infused over a portion of the specified duration and the desired flow rate; and
output a control signal to said pumping mechanism for operating said
10 pumping mechanism based on the determined second pulse frequency.

6. A method for controlling a pumping mechanism of an infusion pump
including a tubular administrative set and a pumping mechanism, the pumping
mechanism being constructed and arranged for releasably receiving the tubular
administrative set and for exerting a pulsing force on the tubular administrative set,
5 thus pressurizing a portion of the tubular administrative set for creating a flow of
fluid from an outlet of the tubular administrative set, the method controlling the
pumping mechanism to pump fluid through the tubular administrative set at a desired
flow rate over a specified duration, a controller being connected to said pumping
mechanism and configured for operating said pumping mechanism, the method
10 comprising:

using the controller to:

determine a first pulse frequency based on a tube diameter of the administrative set, a volume of fluid infused over a portion of the specified duration and the desired flow rate;

15 output a control signal to said pumping mechanism for operating the pumping mechanism based on the determined first pulse frequency based on the desired flow rate;

receive an input from a sensor representing a volume of fluid infused from the tubular administrative set;

20 receive an input as to the type of material used to form the administrative set; and

adjust the first pulse frequency based on the volume of fluid infused to provide a second pulse frequency, said second pulse frequency being different from said first pulse frequency;

25 wherein said adjusting the first pulse frequency comprises adjusting the first pulse frequency using a Tubing Degradation Function compiled based on a comparison of historical data of administrative set flow rate accuracy in terms of % error with volume of fluid infused compared with target pump volume, such that said second frequency maintains the desired volume by compensating for the degradation
30 of the material of the administrative set.

7. The method of claim 6, wherein said adjusting said first pulse frequency

includes at least one of increasing and decreasing said first pulse frequency.

8. The method of claim 6, further comprising:
determining the volume of fluid infused over the portion of the
specified duration based on the received input.