As used above "substantially," "generally," and other words of degree are relative modifiers intended to indicate permissible variation from the characteristic so modified. It is not intended to be limited to the absolute value or characteristic which it modifies but rather possessing more of the physical or functional characteristic than its opposite, and preferably, approaching or approximating such a physical or functional characteristic.

Those skilled in the art will appreciate that various adaptations and modifications of the exemplary and alternative embodiments described above can be configured without departing from the scope and spirit of the invention. Therefore, it is to be understood that, within the scope of the appended claims, the invention may be practiced other than as specifically described herein.

VI. INDUSTRIAL APPLICABILITY

The invention has industrial applicability to assist in the resuscitation of injured individuals who have received burns. The invention brings expertise out of the expert burn centers to medical staffs that may have no expertise and thus the care level provided by those medical staffs to patients should improve.

In a system implemented at USAISR burn center, the system has been successfully used with at least twenty-five burn patients that have not had contraindications. The decision-assist system will likely be used U.S. Army wide in the near future given the success that it has provided in caring for patients.

VII. GLOSSARY

ABA—American Burn Association
ABLS—Advanced Burn Life Support
HPB—Hours Post Burn
LR—lactated Ringer's solution
PID—proportional-integral-derivative
TBSA—Total Body Surface Area
% TBSA—percentage Total body surface area
UO—Urinary Output
USAISR—U.S. Army Institute of Surgical Research
UTMB—University of Texas Medical Branch

We claim:

1. A method for providing decision-assist during resuscitation of a patient, the method comprising:
receiving patient data including percentage of total body surface area;
calculating an initial infusion rate based on at least the patient data;
outputting the initial infusion rate;
obtaining a current urinary output;
calculating a new infusion rate based on at least the current infusion rate, the current urinary output, an infusion rate constant, an urinary constant, and a Gaussian function centered on a desired urinary output; and
outputting the new infusion rate.

2. The method according to claim **1**, further comprising:
repeating obtaining the current urinary output, calculating the new infusion rate, and outputting the infusion rate until receiving a notification to terminate the method.

3. The method according to claim **1**, further comprising:
analyzing the urinary output for at least one problem;
notifying medical staff when at least one problem exists; and
after notifying, receiving instructions to continue or terminate the method.

4. The method according to claim **3**, further comprising continuing with the method when no instruction is received and a predetermined time has elapsed since the notification.

5. The method according to claim **3**, wherein analyzing the urinary output includes determining whether the urinary output is below a predetermined threshold.

6. The method according to claim **5**, wherein analyzing the urinary output includes determining whether a time threshold is satisfied prior to notifying medical staff.

7. The method according to claim **5**, wherein analyzing the urinary output includes determining whether the current infusion rate exceeds an infusion rate threshold before notifying medical staff.

8. The method according to claim **3**, wherein notifying includes providing at least one of an identification of the problem and a recommended course of action.

9. The method according to claim **1**, further comprising waiting for a period of time prior to obtaining the urinary output.

10. The method according to claim **9**, wherein the period of time is determined on current physiological information regarding the patient.

11. The method according to claim **1**, wherein outputting the infusion rate includes displaying the set infusion rate.

12. The method according to claim **1**, wherein outputting the infusion rate includes displaying a graphical representation of the infusion rate over time.

13. The method according to claim **12**, further comprising displaying a graphical representation of urinary output over time.

14. The method according to claim **1**, wherein calculating the new infusion rate is based further on at least one of a patient's weight and the percentage total body surface area.

15. The method according to claim **1**, further comprising selecting the desired urinary output from an end of a target urinary output range closest to the current urinary output when urinary output is outside of the target urinary output range.

16. The method according to claim **1**, wherein the infusion rate constant is selected based on hours past burn and the urinary constant is set to a predetermined value.

17. The method according to claim **1**, further comprising calculating the new infusion rate to a predetermined infusion rate when the new infusion rate is below the predetermined infusion rate.

18. The method according to claim **1**, further comprising selecting a function for calculating the new infusion rate based on hours post burn.

19. The method according to claim **1**, wherein obtaining the current urinary output includes reading of a urine flow from a sensor.

20. A method for providing decision-assist during resuscitation of a patient, the method comprising:
receiving patient data including percentage of total body surface area, a patient's weight, and hours post burn;
calculating an initial infusion rate based on at least the patient data;
outputting the initial infusion rate;
obtaining a current urinary output;
calculating a new infusion rate based on at least the current infusion rate, the current urinary output, an infusion rate constant, an urinary constant, a Gaussian function centered on a desired urinary output, the patient's weight, and the percentage of total body surface area where the patient's weight and the percentage total body surface area provide modifier values for calculating the new infusion rate;