

Free Published Article From Repository

Find PDF

Full Text Options

Export...

Add to Marked List

1 of 1

## Performance of STAR Virtual Trials for Diabetic and Non-Diabetic in HTAA Intensive Care Unit

By: **Jamaludin, UK** (Jamaludin, Ummu K.)<sup>[1]</sup>; **Dzaharudin, F** (Dzaharudin, Fatimah)<sup>[1]</sup>; **Razak, NNA** (Razak, Normy Norfiza A.)<sup>[2]</sup>; **Luqman, HM** (Luqman, M. H.)<sup>[1]</sup>; **Zulkify, WZWM** (Zulkify, W. Zuhiraihan W. M.)<sup>[1]</sup>; **Suhaimi, FM** (Suhaimi, Fatanah M.)<sup>[3]</sup>; **Ralib, AM** (Ralib, Azrina Md.)<sup>[4]</sup>; **Nor, MBM** (Nor, Mohd Basri Mat)<sup>[4]</sup>; **Pretty, CG** (Pretty, Christopher G.)<sup>[5]</sup>

2016 IEEE EMBS CONFERENCE ON BIOMEDICAL ENGINEERING AND SCIENCES (IECBES)

Book Group Author(s): **IEEE**

Book Series: IEEE EMBS Conference on Biomedical Engineering and Sciences

Pages: 193-198

Published: 2016

Document Type: Proceedings Paper

### Conference

Conference: IEEE EMBS Conference on Biomedical Engineering and Sciences (IECBES)

Location: Kuala Lumpur, MALAYSIA

Date: DEC 04-08, 2016

Sponsor(s): IEEE EMBS; IEEE EMB Soc, Engn Med & Biol; IEEE EMBS Malaysia Chapter, Engn Med & Biol; Malaysia Convent & Exhibit Bur; IEEE Stand Assoc; IEEE Humanitarian Activities Comm; NAMAN Technol; Materialise; BioFit Technol & Serv; IEEE RIO Educ Activities; EMB

### Abstract

Critically ill patients are commonly linked to stress-induced hyperglycaemia which relates to insulin resistance and the risk of per-diagnosed with diabetes and other metabolic illnesses. Thus, it is essential to choose the best practice of blood glucose management in order to reduce morbidity and mortality rates in intensive care unit. This study is focusing on clinical data of 210 critically ill patients in Hospital Tengku Ampuan Afzan (HTAA), Kuantan who underwent Intensive Insulin Therapy which utilized a sliding scale method. Patients were identified in two main groups of diabetic (123) and non-diabetic (87) where stochastic model is generated to observe 90% confidence interval of insulin sensitivity. Blood glucose levels comparison between these two cohorts is conducted to observe the percentage of blood glucose levels within targeted band of 4.4 - 10.0 mmol/L. It is found that 82% of BG levels are within targated band for non-diabetes cohort under stochastic targeted (STAR) glycaemic control protocol. However, only 59.6% and 70.6% BG levels are within targeted band for diabetes cohort for insulin infusion therapy used in HTAA and STAR protocols. Thus, further investigation on blood glucose control protocol for diabetes patients is required to increase the reliability and efficacy of current practice despite of patient safety.

### Keywords

Author Keywords: **glycaemic protocol; virtual trial; blood glucose; insulin sensitivity; intensive care; diabetes**

### Author Information

Reprint Address: Jamaludin, UK (reprint author)

Univ Malaysia Pahang, Fac Mech Engn, Pekan 26600, Malaysia.

#### Addresses:

- [ 1 ] Univ Malaysia Pahang, Fac Mech Engn, Pekan 26600, Malaysia
- [ 2 ] UNITEN, Coll Engn, Kajang 43000, Malaysia
- [ 3 ] Univ Sains Malaysia, Adv Med & Dent Inst, Bertam 13200, Malaysia
- [ 4 ] Int Islamic Univ Malaysia, Kuliyyah Med, Kuantan 25200, Malaysia
- [ 5 ] Univ Canterbury, Dept Mech Engn, Christchurch 8140, New Zealand

E-mail Addresses: [ummu85@ump.edu.my](mailto:ummu85@ump.edu.my)

### Funding

Funding Agency	Grant Number

### Citation Network

In Web of Science Core Collection

1

Times Cited

Create Citation Alert

All Times Cited Counts

1 in All Databases

See more counts

25

Cited References

View Related Records

### Most recently cited by:

Jamaludin, Ummu K.; Suhaimi, Fatanah M.; Razak, Normy Norfiza Abdul; et al. [Performance of Stochastic Targeted Blood Glucose Control Protocol by virtual trials in the Malaysian intensive care unit.](#) COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE (2018)

View All

### Use in Web of Science

Web of Science Usage Count

0

Last 180 Days

0

Since 2013

Learn more

This record is from:

Web of Science Core Collection

- Conference Proceedings Citation Index-Science

Suggest a correction

If you would like to improve the quality of the data in this record, please suggest a correction.

Ministry of Higher Education (MOHE)

FRGS (RDU150119)  
RAGS (RDU151405)[View funding text](#)**Publisher**

IEEE, 345 E 47TH ST, NEW YORK, NY 10017 USA

**Categories / Classification**

Research Areas: Engineering

Web of Science Categories: Engineering, Biomedical

[See more data fields](#)

◀ 1 of 1 ▶

**Cited References: 25**Showing 25 of 25 [View All in Cited References page](#)*(from Web of Science Core Collection)*

- 1. Permissive underfeeding or standard enteral feeding in critically ill adults**

By: Arabi, Y. M.; Aldawood, A. S.; Haddad, S. H.; et al.

N Engl J Med Volume: 325 Published: 2015

[\[Show additional data\]](#)

**Times Cited: 1**
- 2. Implementation and evaluation of the SPRINT protocol for tight glycaemic control in critically ill patients: a clinical practice change**

By: Chase, J. Geoffrey; Shaw, Geoffrey; Le Compte, Aaron; et al.

CRITICAL CARE Volume: 12 Issue: 2 Article Number: R49 Published: 2008

**Times Cited: 117**
- 3. Hypoglycemia and Outcome in Critically Ill Patients**

By: Egi, Moritoki; Bellomo, Rinaldo; Stachowski, Edward; et al.

MAYO CLINIC PROCEEDINGS Volume: 85 Issue: 3 Pages: 217-224 Published: MAR 2010

**Times Cited: 190**
- 4. Stochastic Targeted (STAR) Glycemic Control: Design, Safety, and Performance**

By: Evans, Alicia; Le Compte, Aaron; Tan, Chia-Siong; et al.

Journal of Diabetes Science and Technology Volume: 6 Issue: 1 Published: January 2012

Ph.D B. Eng. &COPY; Diabetes Technology Society M. B. Ch. B

[\[Show additional data\]](#)

**Times Cited: 2**
- 5. Hypoglycemia and risk of death in critically ill patients**

By: Finfer, S.; Liu, B.; Chittock, D. R.; et al.

N Engl J Med Volume: 367 Published: 2012

[\[Show additional data\]](#)

**Times Cited: 1**
- 6. Glucose control and mortality in critically ill patients**

By: Finney, S. J.; Zekveld, C.; Elia, A.; et al.

JAMA Volume: 290 Published: 2003

[\[Show additional data\]](#)

**Times Cited: 1**
- 7. STAR development and protocol comparison**

By: Fisk, L.; Lecompte, A.; Penning, S.; et al.

IEEE Trans Biomed Eng Volume: 59 Published: 2012

[\[Show additional data\]](#)

**Times Cited: 1**
- 8. Intensive insulin therapy and mortality among critically ill patients: a meta-analysis including NICE-SUGAR study data**

By: Griesdale, D. E.; de Souza, R. J.; van Dam, R. M.; et al.

Can Med Assoc J Volume: 180 Published: 2009

[\[Show additional data\]](#)

**Times Cited: 1**