

# Forum for Injection Technique 2.0 Addendum 1: Insulin use in indoor settings

Sanjay Kalra, Hemraj B. Chandalia<sup>1</sup>, Manoj Chawla<sup>2</sup>, Nita Munshi<sup>3</sup>, Aruna Poojary<sup>4</sup>, Ami Varaiya<sup>5</sup>, Prajakta Hindlekar<sup>6</sup>, Mugdha Lad<sup>7</sup>, Capt Valsa Thomas<sup>8</sup>, Neha Karle<sup>9</sup>, A. G. Unnikrishnan<sup>10</sup>

Department of Endocrinology, Bharti Hospital, Karnal, Haryana, <sup>1</sup>Diabetes Endocrinology Nutrition Management and Research Centre and Endocrinology, Diabetes, Metabolism, Jaslok Hospital and Research Center, <sup>2</sup>Department of Diabetology, Lina Diabetes Care Mumbai Diabetes Research Centre, Mumbai, <sup>3</sup>Director Laboratory and Chairperson HICC, Ruby Hall Clinic, Pune, <sup>4</sup>Department of Pathology and Microbiology, Breach Candy Hospital, <sup>5</sup>Department of Microbiology, Dr. Balabhai Nanavati Super Speciality Hospital, <sup>6</sup>Department of Nursing, Breach Candy Hospital Trust, <sup>7</sup>Department of Nursing, Dr. Balabhai Nanavati Super Speciality Hospital, <sup>8</sup>Department of Nursing, Dr. L.H. Hiranandani Hospital, <sup>9</sup>Department of Nursing, Lilavati Hospital, Mumbai, <sup>10</sup>Chief Endocrinologist and CEO, Chellaram Diabetes Institute, Pune, Maharashtra, India

### ABSTRACT

Insulin is a frequently used drug in the indoor setting. Comprehensive recommendations for best practice in insulin injection technique have been published by the forum for injection technique (FIT), India. This addendum focuses on insulin use in indoor settings, and complements the FIT 2.0 recommendations. It discusses insulin use and disposal in critical care and noncritical care settings. It also highlights the need to ensure continuing nursing and medical education, and frame insulin policies for such use.

**Key words:** Hospital, insulin, insulin disposal, intravenous insulin, nursing care, subcutaneous insulin

## INTRODUCTION

The Forum for Injection Technique (FIT), India, released the second edition of its Recommendations for best practice in insulin injection technique in 2015.<sup>[1]</sup> While the need to focus on insulin injection techniques in perioperative and intensive care settings has been highlighted earlier,<sup>[2]</sup> the FIT2.0 has focused more on insulin usage in the outdoor setting. The FIT 2.0 recommendations do describe insulin use in indoor patients, but in brief. Keeping in view the high incidence of needlestick injuries, and inaccurate insulin technique, in nurses who inject insulin,<sup>[3]</sup> there is a need to highlight insulin technique in indoor settings.

**Corresponding Author:** Dr. Sanjay Kalra,  
Department of Endocrinology, Bharti Hospital,  
Karnal, Haryana, India.  
E-mail: brideknl@gmail.com

#### Access this article online

##### Quick Response Code:



**Website:**  
www.ijem.in

**DOI:**  
10.4103/2230-8210.192918

This addendum suggests best practices to be followed in hospitalized patients in detail. It discusses practices for safe insulin use and disposal in the Intensive Care Units (ICU) and noncritical care settings, and underlines the need to create insulin policies or insulin stewardship programs, similar to existing antibiotic policy guidelines and programs, in each ICU and ward.

While drafting this addendum, covering guidance on insulin use in indoor settings, inputs from infection control and nursing experts were taken at an expert meeting held on May 10, 2016 in Mumbai, India. This was done to ensure practicality and pragmatism in execution of these recommendations in an indoor setting or hospital setup. For a clinical consensus, the addendum was shared with members of the FIT India board for their views before it was finalized.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

**For reprints contact:** reprints@medknow.com

**Cite this article as:** Kalra S, Chandalia HB, Chawla M, Munshi N, Poojary A, Varaiya A, et al. Forum for Injection Technique 2.0 Addendum 1: Insulin use in indoor settings. Indian J Endocr Metab 2016;20:863-5.

### Critical care settings

- Each ICU should frame and follow an insulin policy, with equal emphasis on patient and health-care provider safety
- The policy should focus on appropriate insulin technique, including prevention and management of needlestick injury
- The ICU insulin policy should state the insulin preparation, strength, and delivery device to be used.
- Compatibility of insulin strengths and their delivery devices should be ensured.
- As far as possible, a single strength of insulin should be used in all patients in a hospital to minimize errors.
- In India, presently, it is recommended that only vials and syringes be used. Use of insulin pens eliminates the need for matching strength of insulin and delivery device.
- Insulin syringes should be stored away from other syringes
- At times, insulin syringes may be used for other purposes such as antibiotic sensitivity tests. Such syringes should be marked and stored separately
- Records of glucose monitoring, insulin dosage, time, and site of insulin must be maintained in indoor settings
- Such records may be on dedicated sheets, or may be part of the overall bedside medical charts
- Each patient should have his or her own insulin vial or pen, preferably kept at the bedside
- Each vial or pen should be labeled with the patient's name and bed number/registration number
- Certain ICUs use a common insulin vial for all patients. A fresh syringe should be used to draw each insulin dose
- Emphasis should be laid on avoidance of syringe reuse, correct sharps disposal, and avoidance of needlestick injuries
- Needlestick injuries must be reported to higher authorities in real time, using standard reporting forms
- Intravenous insulin is the drug of choice for glycemic control in critical care settings.<sup>[4,5]</sup>

### Noncritical care settings

#### Insulin policy

- Each ward should frame and follow an insulin policy, with equal emphasis on patient and health-care provider safety
- The policy should focus on appropriate insulin technique, including prevention and management of needlestick injury

- The ward insulin policy should state the responsibilities of nursing and medical staff with respect to insulin prescription, counseling, storage, dose titration, administration, and disposal
- Insulin syringes should be stored away from other syringes
- At times, insulin syringes may be used for other purposes such as antibiotic sensitivity tests. Such syringes should be marked and stored separately
- Each patient should have his or her own insulin vial(s), kept at the bedside or in a common refrigerator
- Each vial or pen should be labeled with the patient's name and bed number/registration number
- Subcutaneous insulin is the drug of choice for glycemic control in noncritical care settings<sup>[5]</sup>
- As far as possible, a single strength of insulin should be used to minimize errors
- Use of insulin pens reduces the chances of error.

#### Injection responsibility

- Nursing and medical staff should assist in glucose monitoring, dose titration, and insulin injection when required
- Patients who are capable of self-injecting should be encouraged to administer their insulin doses themselves
- Patients who are unable to inject on their own should be administered insulin by nursing staff
- Records of glucose monitoring, insulin dosage, time, and site of insulin must be maintained in indoor settings
- Such records may be on dedicated sheets, or may be part of the overall bedside medical charts.

#### Injection technique

- Compatibility of insulin strengths and their delivery devices should be ensured
- Nursing staff must make every attempt to inject insulin over the abdomen or thigh
- Nursing staff must make every attempt to follow a proper rotation policy
- Rotation can be followed by marking sites of insulin injections with ink, after taking patient consent, and avoiding those sites for future injections
- Rotation can also be followed by recording the site of every insulin injection on a paper grid attached to the insulin dose chart
- Emphasis should be laid on avoidance of syringe reuse, correct sharps disposal, and avoidance of needlestick injuries
- Needlestick injuries must be reported to higher authorities in real time, using standard reporting forms.

### Patient education

- Nursing staff should be aware that the insulin injection technique they practice will be followed by patients at home, after discharge
- Medical and nursing staff should ensure that patients and/or their caregivers are adequately trained in insulin technique and disposal before discharge from hospital.

### Safe disposal

Hospital staff are at high risk of needlestick injuries, and this predisposes them to blood-borne diseases.<sup>[6]</sup> Safe disposal practices help minimize this risk. It is recommended that:

- Insulin syringes and pen needles should not be reused in indoor settings
- Insulin syringe and pen needles should not be recapped
- Insulin syringes and pen needles should be disposed of in dedicated sharps containers
- Sharps containers should be available in every ICU, ward patient room, and at every nursing station
- Insulin sharps should be disposed of in accordance with biomedical waste regulations<sup>[7]</sup>
- At discharge, patients and their care givers should be counseled about safe and environment-friendly disposal methods.

### Audit and appraisal

- The ICU and ward insulin policy should be audited regularly by senior nursing and medical staff
- Continuing nursing and medical education should be carried out to ensure proper insulin use and disposal in indoor settings
- Such continuing education should factor the frequent turnover of nursing and resident staff in hospital settings.

## SUMMARY

These simple, yet succinct, suggestions add value to the FIT 2.0 guidelines and should be useful for both nursing and medical staff. These suggestions should encourage creation of insulin policies, similar to antibiotic policies followed in the ICUs, in indoor settings.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Tandon N, Kalra S, Balhara YP, Baruah MP, Chadha M, Chandalia HB, *et al.* Forum for Injection Technique (FIT), India: The Indian recommendations 2.0, for best practice in Insulin Injection Technique, 2015. *Indian J Endocrinol Metab* 2015;19:317-31.
2. Bajwa SJ, Kalra S, Baruah MP, Bajwa SK. An acute need for awareness of insulin injection guidelines in operative and intensive care units. *Anesth Essays Res* 2013;7:1-3.
3. Costigliola V, Frid A, Letondeur C, Strauss K. Needlestick injuries in European nurses in diabetes. *Diabetes Metab* 2012;38 Suppl 1:S9-14.
4. Kalra S, Bajwa SJ. Intravenous insulin use: Technical aspects and caveats. *J Pak Med Assoc* 2013;63:650-3.
5. Umpierrez GE, Hellman R, Korytkowski MT, Kosiborod M, Maynard GA, Montori VM, *et al.* Management of hyperglycemia in hospitalized patients in non-critical care setting: An endocrine society clinical practice guideline. *J Clin Endocrinol Metab* 2012;97:16-38.
6. Kalra S, Balhara YP, Baruah MP, Chadha M, Chandalia HB, Chowdhury S, *et al.* Forum for injection techniques, India: The first Indian recommendations for best practice in insulin injection technique. *Indian J Endocrinol Metab* 2012;16:876-85.
7. Kalra S, Girdhar R, Sahay R. Green diabetology. *Indian J Endocrinol Metab* 2015;19:698-700.