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Medtronic

Urgent Field Safety Notice Update

SynchroMed® II Programmable Pump

Update to Model 8870 Software Application Card used in the 8840 N'Vision™ Clinician Programmer and SynchroMed® Infusion System Labeling for Priming Bolus

December 2016

Medtronic reference: FA573 Phase II

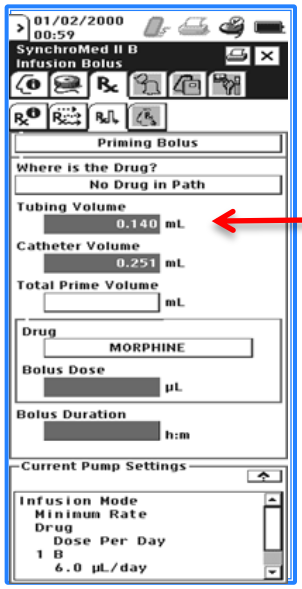
This letter is a follow up to the June2013 communication (refer to the attached copy of that letter for a full description of the issue and potential risks) regarding the SynchroMed II priming bolus function and to inform you that Medtronic is updating the Model 8870 software application card (to version BBU01) as well as the SynchroMed® Infusion System labeling to address the issue. The SynchroMed priming bolus function is intended to quickly advance drug from the pump reservoir to the catheter tip to allow for therapy initiation while the patient remains under medical supervision.

The updated 8870 software card mitigates the potential for clinically relevant effects of over-delivery of unintended drug, such as respiratory depression, loss of consciousness, or death, during the full system priming bolus procedure. The therapy applications on the software card for deep brain stimulation and spinal cord stimulation remain unchanged.

This letter provides a description of the software change, description of labeling changes, 8870 Software Card Recommendations and New Priming Bolus Recommendations.

Description of Software Change

The software update will change the value displayed on the 8840 programmer for the SynchroMed II pump tubing volume from 0.199 ml to **0.140** ml (see picture). The tubing volume is used to calculate the total volume of a full system priming bolus. This volume change does not alter the procedural steps or the other calculations required to program a priming bolus.



Over delivery of drug during priming bolus has the potential to lead to overdose symptoms in some patients. This software change mitigates the potential for unintended over-delivery of drug while still ensuring prompt therapy initiation. However, there continues to be a potential for underdose symptoms to present for a period of time after the completion of the full system priming bolus. This potential for underdose symptoms occurs when a high concentration of drug solution is

used at a low total therapeutic daily dose. Therefore, do not increase the programmed daily dose within the first 48 hours following a full system prime.

Description of Labeling Changes

The SynchroMed® II Infusion System Manuals were updated for the priming bolus function. A reference booklet, titled *Important Labeling Updates Related to Priming Bolus with the SynchroMed® II Infusion System,* was created to provide information on the updated manual content. This reference booklet is included as Attachment 1.

8870 Software Card Recommendations

- Continue to use the current software card and its displayed tubing volume until your Medtronic Representative has exchanged the current card with the new software card (new version is BBU01).

New Priming Bolus Recommendations

New guidelines regarding priming bolus are listed below. Reference Attachment 1 for a complete list of labeling changes related to priming bolus as used on SynchroMed II Infusion Pumps.

- For a full system priming bolus: Based on the therapeutic index of the drug and the sensitivity of the patient, some individuals may need additional monitoring until the delivered drug reaches the intended concentration. Do not increase the programmed daily dose within the first 48 hours following a priming bolus as the delivered drug may not have reached the intended concentration during this time.
- For a full system priming bolus: Priming bolus default parameters have been carefully selected based on extensive modeling and testing. To ensure optimal initiation of therapy, modifications to these values are not recommended.
- The priming bolus function has not been characterized during intravascular administration of floxuridine (FUDR) and methotrexate; therefore dosing within the first 24 hours might be variable.

We are committed to continuing to improve our product performance and services to enable you to manage your patients in a safe and effective manner. If you have questions, please contact your Medtronic Representative directly or via Tel. no:+353 1 5111400

Sincerely,

Keith Taverner UK & Ireland Regulatory Affairs Manager

Attachments:

- Important Labeling Updates Related to Priming Bolus with the SynchroMed® II Infusion System
- June 2013 – Urgent Field Safety Notice SynchroMed® Implantable Infusion Pump Priming Bolus

Important Labeling Updates Related to Priming Bolus with the SynchroMed® II Infusion System

As a result of the June 2013 Medical Device Correction letter, information about the priming bolus function was modified in the following SynchroMed® II Infusion System manuals:

- *SynchroMed® and IsoMed® Implantable Infusion Systems Information for Prescribers Manual*
- *Model 8637 SynchroMed® II Programmable Pump Implant Manual*
- *Model 8840 N'Vision® Clinician Programmer with Model 8870 Software for SynchroMed® II Infusion Systems Programmer Guide*

The new manual content provides important safety information regarding priming bolus, patient management and monitoring recommendations, and procedural instructions.

Note: The intent of this reference booklet is to direct you to the new manual content. It is not a substitute for the full instruction in the manuals.

Important Safety Information

A warning about fluid mixing during priming bolus was added to the information for prescribers manual and the clinician programmer manual.

Warnings

Priming bolus (SynchroMed Pumps)—Mixing of drug and non-drug (sterile water/CSF) fluids occurs at the high flow rates used during a priming bolus. This mixing can result in patients receiving drug prior to the end of the priming bolus, as well as a period of reduced drug concentration following the priming bolus, and can lead to adverse events involving drug overdose, underdose, and withdrawal. These adverse events will vary depending on the drug being infused, and could include lack of therapeutic effectiveness, confusion or altered mental state, sleepiness, nausea, respiratory depression, coma or death. Refer to "Emergency Procedures" in the indications, drug stability, and emergency procedures manual and the appropriate drug labeling for specific drug underdose and overdose symptoms and actions.

Medtronic recommends monitoring patients after any priming bolus procedure involving intrathecal therapy. Refer to "Patient Management and Monitoring after Start or Restart of Intrathecal Therapy" in the information for prescribers manual.

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Patient Management and Monitoring Recommendations

Recommendations related to priming bolus were added to the information for prescribers manual.

Patient Management and Monitoring after Start or Restart of Intrathecal Therapy

Medtronic recommends the following for managing all patients with intrathecal therapy:

- Use the priming bolus procedure to ensure that intrathecal therapy is initiated while the patient is under medical supervision.
- To reduce the risk of overdose during a priming bolus:
  - Avoid high concentration drug solutions when using a low total daily dose.
  - Consider priming the pump **before** connecting the catheter to the pump (back table prime) during an initial system implant or a pump replacement. Refer to the clinician programmer guide for information on how to program the priming bolus.
- Monitor patients after any priming bolus procedure involving intrathecal therapy, as recommended below.
  - **Opioids:** Patients should be monitored with pulse oximetry for a minimum of 24 hours in a facility equipped with emergency airway management, oxygen, naloxone for treatment of opioid overdose and other emergency services.
  - **Baclofen:** Patients should be monitored in a facility that provides experienced nursing observation, with the ability and personnel for emergency airway management and ventilator support readily available. Patients should be monitored for a minimum of 8 hours or until they demonstrate stable neurological, respiratory and cardiac function.
  - **Ziconotide:** There are no labeling guidelines for patient monitoring after starting or restarting ziconotide therapy. Published guidance recommends an overnight admission.
- Educate caregivers and family members to recognize the signs and symptoms associated with intrathecal drug overdose, underdose, and withdrawal. Instruct them to contact the patient's physician if they notice any of these signs or symptoms and to seek emergency assistance as necessary.

The following patient populations were identified as having increased risk of adverse events from drug overdose and underdose:

- Elderly patients.
- Patients with compromised respiratory, renal, hepatic, or cardiac function.
- Patients exposed to other agents, such as systemic opioids, alcohol, sedatives, antihistaminics, or psychotropic drugs, that can potentiate the central nervous system depressant effects of intrathecal morphine.
- Opioid-naïve or opioid-sensitive patients undergoing new pump and catheter implants, especially those prescribed high concentration drug solutions with low daily doses.
- Patients who are sensitive to baclofen and require low daily doses.
- For baclofen patients undergoing pump or catheter revision, a delay in achieving the intended therapeutic dose could occur and may result in temporary return of symptoms such as increased spasticity or baclofen withdrawal.

Note: Other clinically relevant patient populations may exist in addition to these examples.

Priming Bolus Definition

The definition for priming bolus was modified in the clinician programmer manual.

Priming bolus—advances drug from the pump reservoir through the internal pump tubing and/or catheter to prime the system and allows rapid start or restart of therapy while the patient is under medical supervision. The prime volume will vary depending on the location of the drug within the system and the type of procedure (eg, initial system implant, pump/catheter replacement, catheter revision, catheter contrast study). When the priming bolus is finished, the pump returns to the programmed infusion mode.

Back Table Prime Definition

A definition for back table prime was added to the clinician programmer manual.

Back table prime—A priming bolus performed before the pump is implanted in the patient that advances drug from the pump reservoir through the internal pump tubing. Also known as a pre-implant pump prime.

Priming Bolus Instructions

Instructions for priming the pump BEFORE implant (back table prime) were added to the pump implant manual.

Priming the pump before implant (if applicable)

⚠ **Warning:** If the pump is being primed before implant, allow the prime to finish **before** connecting the catheter to the pump. If the prime is not finished, drug can be bolused into the catheter and can result in a clinically significant or fatal overdose.

Note: Refer to the clinician programmer guide for information on how to program the priming bolus.

For a full system implant or a pump replacement with aspirated catheter

1. To reduce the risk of overdose, consider using a priming bolus of 0.300 mL to fill the internal pump tubing with drug **before** connecting the catheter and implanting the pump (back table prime).

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Instructions for priming the system AFTER implant (with or without back table prime) were added to the pump implant manual.

Programming the pump

For a full system implant or a pump replacement with aspirated catheter

1. Enter the following into the clinician programmer: patient information, catheter model number, implanted catheter length (in centimeters), drug name and concentration, and the volume of prescribed fluid placed in the pump reservoir at implant.

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2. Program the implanted pump to deliver a priming bolus. Refer to the clinician programmer guide for information on how to calculate and program the priming bolus.
   a. **If the pump was primed before implant,** enter the catheter volume as the total prime volume.

      ⚠ **Warning:** If the catheter is new or has been aspirated and the pump was primed before implant, prime **only the catheter** after connecting the catheter and implanting the pump. **Do not** include the internal pump tubing volume in the total prime volume calculation. An inaccurate calculation of the total prime volume can result in a clinically significant or fatal overdose.

   b. **If the pump was not primed before implant,** enter the sum of the internal pump tubing volume and the catheter volume as the total prime volume.

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