

Urgent Field Safety Notice

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May 2020

**ADVIA® 1800 Chemistry System
ADVIA® 2400 Chemistry System
ADVIA® Chemistry XPT System**

N-acetyl-p-benzoquinone imine (NAPQI) Interference with ADVIA® Chemistry Fructosamine (FRUC) and Enzymatic Creatinine_2 (ECRE_2) Assays

Our records indicate that your facility may have received the following products:

Table 1. ADVIA Chemistry Systems Affected Product(s)

Assay	Test Code	REF Number	Siemens Material Number (SMN)	Lot Number
Fructosamine	FRUC	04862501	10361941	ALL
Enzymatic Creatinine_2	ECRE_2	04992596	10335869	ALL

Reason for Correction

The purpose of this communication is to inform you of an interference identified with the products indicated in Table 1 above and to provide instructions on actions that your laboratory must take.

Siemens Healthcare Diagnostics has become aware that the presence of N-acetyl-p-benzoquinone imine (NAPQI), a metabolite of acetaminophen, may cause interference in certain chemistry assays when testing patient samples. Through spiking studies of NAPQI at 15 mg/L [101 µmol/L], Siemens observed a bias with the FRUC assay of approximately -35% at a fructosamine concentration of 356 µmol/L, and a bias with the ECRE_2 assay of approximately -16% at a creatinine concentration of 0.81 mg/dL (72 µmol/L). This level of NAPQI correlates to a toxic level of acetaminophen. Titration experiments were subsequently performed to characterize the potential for interference at decreasing concentrations of NAPQI.

Actions being Taken by Siemens:

The "Limitations of the Procedure" section of the ADVIA Chemistry FRUC assay Instructions for Use (IFU) will be updated to indicate that *'N-acetyl-p-benzoquinone imine (NAPQI) is a metabolite of acetaminophen. NAPQI concentrations of approximately 3 mg/L correlating to supratherapeutic levels of acetaminophen demonstrates a ≤10% change in results. NAPQI concentrations greater than this may lead to falsely depressed results for patient samples. Use of this assay is not recommended for patients being treated for an overdose of acetaminophen.'*

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The “Limitations of the Procedure” section of the ADVIA Chemistry ECRE_2 assay IFU will be updated to indicate that *‘N-acetyl-p-benzoquinone imine (NAPQI) is a metabolite of acetaminophen. NAPQI concentrations of approximately 8 mg/L correlating to toxic levels of acetaminophen demonstrates a ≤10% change in results. NAPQI concentrations greater than this may lead to falsely depressed results for patient samples.’*

The information related to NAPQI provided in this letter supersedes the information in the current ADVIA Chemistry FRUC and ECRE_2 IFUs until each is updated.

The updated IFUs will be uploaded into Document Library where all registered users who opt in to receive alerts will be notified of the updated IFU.

Risk to Health

In a patient being treated for acetaminophen toxicity, the potential exists to report a falsely depressed fructosamine which may affect consideration for intervention. It is extremely unlikely, however, that fructosamine would be used to assess glycemic status in an acetaminophen overdose situation. For a patient being treated for acetaminophen toxicity, glucose would be used to inform the physician of a patient’s glycemic status.

At toxic levels of acetaminophen, NAPQI interference may lead to falsely depressed creatinine values. The magnitude of the bias would not be expected to lead to a clinically significant difference in patient management.

Actions to be Taken by the Customer:

- Be aware of the limitations indicated above.
- Please review this letter with your Medical Director.
- If you have received any complaints of illness or adverse events associated with the products listed in Table 1, immediately contact your local Siemens Customer Care Center or your local Siemens technical support representative.

Please retain this letter with your laboratory records and forward this letter to those who may have received this product.

We apologize for the inconvenience this situation may cause. If you have any questions, please contact your Siemens Customer Care Center or your local Siemens Technical Support representative.

ADVIA is a trademark of Siemens Healthcare Diagnostics.

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Frequently Asked Questions:

1. Which other assays have been tested for NAPQI interference?

Cholesterol_2 (CHOL_2), Creatinine Concentrated (CRE_2c, Jaffe method), Direct Bilirubin_2 (DBIL_2), Direct HDL Cholesterol (DHDL), Glucose Oxidase (GLUO), Lactate (LAC), Lipase (LIP), Total Bilirubin_2 (TBIL_2), Triglycerides_2 (TRIG_2), and Uric Acid (UA) have been tested on the ADVIA Chemistry system and did not show any significant interference ($\leq 10\%$ bias) up to NAPQI concentrations of 15 mg/L (101 $\mu\text{mol/L}$).

2. Is the Jaffe Creatinine (CRE_2c) assay impacted by the presence of NAPQI?

Siemens testing has shown that the Jaffe CRE_2c assay is not impacted by NAPQI interference. The Jaffe methodology uses different reagents and parameters than the ECRE_2 assay.