At Siemens Healthineers, our purpose is to enable healthcare providers to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, and improving patient experience, all enabled by digitalizing healthcare.

An estimated 5 million patients globally benefit every day from our innovative technologies and services in the areas of diagnostic and therapeutic imaging, laboratory diagnostics and molecular medicine, as well as digital health and enterprise services.

We are a leading medical technology company with over 170 years of experience and 18,000 patents globally. With more than 48,000 dedicated colleagues in 75 countries, we will continue to innovate and shape the future of healthcare.

ADVIA, Dimension, Dimension Vista, epoc, RAPIDLab, and all associated marks are trademarks of Siemens Healthcare Diagnostics Inc., or its affiliates. All other trademarks and brands are the property of their respective owners.

Product availability may vary from country to country and is subject to varying regulatory requirements. Please contact your local representative for availability. Method comparison studies were performed at three sites.
epoc Blood Analysis System: Summary of Analytical Methods and Performance

Table of Contents
Performance Data ............................................................... 4
Glossary ........................................................................ 4
Methodologies ................................................................. 4
pH ...................................................................................... 6
pCO₂ ................................................................................... 8
pO₂ ................................................................................... 10
TCO₂ ................................................................................. 12
Sodium ............................................................................. 14
Potassium ......................................................................... 16
Ionized Calcium ................................................................. 18
Chloride ............................................................................ 20
Hematocrit ....................................................................... 22
Glucose ............................................................................. 24
Lactate ............................................................................. 26
BUN .................................................................................. 28
Creatinine ......................................................................... 30
**Performance Data**

The data summarized here are compiled from user performance verifications of the epoc Blood Analysis System, performed as part of the implementation process.

**Precision**

The precision data provided for each analyte are the pooled averages of the precision data from performance verifications from 1–12 user sites.

**Method comparision**

Method comparison studies were performed by individuals who were thoroughly familiar with the operation, maintenance, and control of both the epoc system and comparative method systems before starting. Testing was performed at all sites using blood collected in either blood gas syringes or in green-top evacuated tubes.

Some samples were spiked with concentrated solutions to create samples with concentrations throughout the reportable range of each analyte. Each plot included in this summary is from 1–3 sites and is representative of the comparison of the epoc Blood Analysis System to each instrument.

**Glossary**

**Accuracy**

is how close a result is to its true value.

**Precision**

is reproducibility—how closely multiple results obtained from the same sample agree with each other.

**Slope**

describes the angle of the line that provides the best fit of the test and comparison results. A perfect slope would fit the test and comparison results. A perfect slope would indicate that the two methods change together. The lower the r value, the more scatter there is in the data.

**Intercept (int’)**

describes where the line of best fit intersects the y-axis. The intercept should be an indication of constant systematic error.

**r or correlation coefficient**

describes how closely the results between the two methods change together. The lower the r value, the more scatter there is in the data.

**Methodologies**

**pH**

is measured by potentiometry using a pH-selective membrane electrode. The concentration of hydrogen ions is obtained from the measured potential using the Nernst equation.

**pCO2**

is measured by potentiometry using a membrane-covered pH sensing electrode. The electrode voltage is proportional to the dissolved carbon dioxide concentration through the Nernst equation.

**pO2**

is measured by amperometry using a membrane-covered oxygen-sensing cathode electrode. The oxygen reduction current is proportional to the dissolved oxygen concentration.

**TCO2**

is measured based on a modified Henderson-Hasselbalch equation, using pH and pCO2, and calibrated to match the International Federation of Clinical Chemistry (IFCC) Reference Measurement Procedure for Total Carbon Dioxide. Therefore, it is metabolically traceable to the IFCC TCO2 reference method.

**Sodium**

is measured by potentiometry using an ion-selective membrane electrode. The concentration of sodium ions is obtained from the measured potential using the Nernst equation. The epoc sodium measurement is an unlabeled (direct) method. Values may differ from those obtained by dilutional (indirect) methods.

**Potassium**

is measured by potentiometry using an ion-selective membrane electrode. The concentration of potassium ions is obtained from the measured potential using the Nernst equation. The epoc potassium measurement is an unlabeled (direct) method. Values may differ from those obtained by dilutional (indirect) methods.

**Ionized calcium**

is measured by potentiometry using an ion-selective membrane electrode. The concentration of calcium ions is obtained from the measured potential using the Nernst equation.

**Chloride**

is measured by potentiometry using an ion-selective membrane electrode. The concentration of chloride ions is obtained from the measured potential using the Nernst equation.

**Hemocrit**

is measured by AC conductometry using two gold electrodes. The conductance of the blood sample in the fluidic path between the two electrodes, after correction for variable plasma conductivity through the measurement of sodium and potassium concentration, is inversely proportional to the hemocrit value.

**Glucose**

is measured by amperometry. The sensor comprises an immobilized enzyme (first layer coated onto a gold electrode of the electrode module, with a diffusion barrier second layer. The glucose oxidase enzyme is employed to convert glucose to hydrogen peroxide:

```
Glucose + O2 + H2O = Gluconic acid + H2O2
```

and then uses an amperometric sensor to detect the enzymatically produced hydrogen peroxide. Peroxide detection is by redox-mediated (ABTS (2,2’-azino-bis-3-ethylbenzothiazoline-6-sulfonic acid) dimmonium salt) horseradish peroxidase (HRP)-catalyzed reduction on a gold electrode.

```
H2O2 + HRP + Ox = H2O + Red
```

The reduction current is proportional to the concentration of glucose in the test fluid. The epoc glucose result is reported as plasma-equivalent glucose concentration.

**Lactate**

is measured by amperometry. The sensor comprises an immobilized enzyme (first layer coated onto a gold electrode of the electrode module, with a diffusion barrier second layer. The lactate oxidase enzyme is employed to convert lactate to hydrogen peroxide:

```
Lactate + O2 + H2O = Lactic acid + H2O2
```

and then uses an amperometric sensor to detect the enzymatically produced hydrogen peroxide. Peroxide detection is by redox-mediated (ABTS (2,2’-azino-bis-3-ethylbenzothiazoline-6-sulfonic acid) dimmonium salt) horseradish peroxidase (HRP)-catalyzed reduction on a gold electrode.

```
H2O2 + HRP = Red
```

The reduction current is proportional to the concentration of lactate in the test fluid.

**BUN/Urea**

is measured by potentiometry using an ammonium ion selective electrode coated onto a gold electrode, covered with an enzymatic membrane second layer. The urease enzyme is employed to convert urea to ammonium ions:

```
Urea + H2O = NH3 + CO2
```

and then uses a potentiometric ion selective electrode to detect the enzymatically produced ammonium ion. The concentration of ammonium ions is obtained from the measured potential using the Nernst equation.

**Creatinine**

is measured by amperometry. Each creatinine sensor is a three-layer enzyme electrode comprising a first immobilized enzyme creatinine-conversion underlayer coated onto a gold electrode, a second immobilized enzyme creatine screening layer, and a third diffusion barrier layer.

```
Creatinine + H2O = Sarcosine + Urea
```

The creatinine electrode underlayer contains the enzymes creatinine amidohydrolase, creatine amidohydrolase, and sarcosine oxidase, which convert creatinine to hydrogen peroxide in an enzyme product cascade:

```
Creatinine + H2O → Sarcosine + Urea
```

Please refer to the epoc Blood Analysis System Manual for more information.

**References**


# pH Method Comparison

**pH**

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>24</td>
<td>7.052</td>
<td>0.009</td>
<td>0.13%</td>
</tr>
<tr>
<td>Level 3</td>
<td>25</td>
<td>7.646</td>
<td>0.007</td>
<td>0.09%</td>
</tr>
</tbody>
</table>

#### pH

- **X:** Abbott I-STAT System  
  **Y:** epoc System

- **X:** Radiometer ABL 700 System  
  **Y:** epoc System

- **X:** Siemens Healthineers® 1265 Blood Gas System  
  **Y:** epoc System

- **X:** Nova Biomedical CRITICAL CARE XPRESS System  
  **Y:** epoc System

- **X:** RAPIDLab® 1265 Blood Gas System by Siemens Healthineers  
  **Y:** epoc System

- **X:** IL GEM PREMIER 3000 System  
  **Y:** epoc System

- **X:** IRMA TRUPOINT System  
  **Y:** epoc System
**pCO₂ Method Comparison**

### pCO₂ mmHg

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>24</td>
<td>67.2</td>
<td>2.30</td>
<td>3.41%</td>
</tr>
<tr>
<td>Level 3</td>
<td>25</td>
<td>20.8</td>
<td>0.68</td>
<td>3.25%</td>
</tr>
</tbody>
</table>

### pCO₂

- **X: Abbott I-STAT System**
  - **Y: epoc System**
  - **n = 41**
  - **slope = 1.058**
  - **int. = 4.60**
  - **Sy.x = 2.03**
  - **r = 0.996**

- **X: RAPIDLab 1265 Blood Gas System by Siemens Healthineers**
  - **Y: epoc System**
  - **n = 25**
  - **slope = 1.000**
  - **int. = 0.91**
  - **Sy.x = 1.24**
  - **r = 0.999**

- **X: Nova Biomedical CRITICAL CARE XPRESS System**
  - **Y: epoc System**
  - **n = 46**
  - **slope = 1.006**
  - **int. = 2.86**
  - **Sy.x = 2.88**
  - **r = 0.979**

- **X: IRMA TRUPOINT System**
  - **Y: epoc System**
  - **n = 32**
  - **slope = 1.047**
  - **int. = -2.49**
  - **Sy.x = 1.56**
  - **r = 0.979**

- **X: Radiometer ABL 700 System**
  - **Y: epoc System**
  - **n = 26**
  - **slope = 0.977**
  - **int. = -0.24**
  - **Sy.x = 1.63**
  - **r = 0.995**


**pO₂ Method Comparison**

**pO₂ mmHg**

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>24</td>
<td>63.7</td>
<td>4.46</td>
<td>7.00%</td>
</tr>
<tr>
<td>Level 3</td>
<td>25</td>
<td>185.6</td>
<td>6.46</td>
<td>3.48%</td>
</tr>
</tbody>
</table>

\[
pO_2 = \text{X: Abbott I-STAT System} \\
\text{Y: epoc System}
\]

\[
r = 0.997 \\
n = 42 \\
slope = 0.949 \\
\text{int}.' = 7.86 \\
Sy.x = 4.78
\]

\[
pO_2 = \text{X: RAPIDLib 1265 Blood Gas System by Siemens Healthineers} \\
\text{Y: epoc System}
\]

\[
r = 0.995 \\
n = 51 \\
slope = 0.919 \\
\text{int}.' = 9.01 \\
Sy.x = 5.80
\]

\[
pO_2 = \text{X: Radiometer ABL 700 System} \\
\text{Y: epoc System}
\]

\[
r = 0.987 \\
n = 24 \\
slope = 1.018 \\
\text{int}.' = 3.64 \\
Sy.x = 4.04
\]

\[
pO_2 = \text{X: IL GEM PREMIER 3000 System} \\
\text{Y: epoc System}
\]

\[
r = 0.971 \\
n = 32 \\
slope = 0.947 \\
\text{int}.' = -6.60 \\
Sy.x = 14.20
\]

\[
pO_2 = \text{X: Nova Biomedical CRITICAL CARE XPRESS System} \\
\text{Y: epoc System}
\]

\[
r = 0.998 \\
n = 43 \\
slope = 0.900 \\
\text{int}.' = 11.32 \\
Sy.x = 8.50
\]

\[
pO_2 = \text{X: IRMA TRUPOINT System} \\
\text{Y: epoc System}
\]

\[
r = 0.997 \\
n = 31 \\
slope = 1.047 \\
\text{int}.' = -6.60 \\
Sy.x = 5.13
\]
TCO₂ Method Comparison

TCO₂ mmol/L

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>136</td>
<td>18.7</td>
<td>0.23</td>
<td>1.2%</td>
</tr>
<tr>
<td>Level 3</td>
<td>132</td>
<td>30.8</td>
<td>0.54</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

TCO₂

X: Dimension® EXL Integrated Chemistry System by Siemens Healthineers
Y: epoc System

r = 0.974
n = 65
slope = 1.05
int. = 0.8
Sy.x = 1.17
r² = 0.974

TCO₂

X: Dimension Vista® Intelligent Lab System by Siemens Healthineers
Y: epoc System

r = 0.973
n = 144
slope = 1.18
int. = -3.7
Sy.x = 1.0
r² = 0.973

TCO₂

X: Beckman DXC System
Y: epoc System

r = 0.977
n = 40
slope = 1.12
int. = -2.1
Sy.x = 0.58
r² = 0.977

TCO₂

X: Abbott ARCHITECT System
Y: epoc System

r = 0.981
n = 86
slope = 0.98
int. = 2.2
Sy.x = 1.17
r² = 0.981

TCO₂

X: ROCHE COBAS
Y: epoc System

r = 0.989
n = 80
slope = 1.02
int. = 1.2
Sy.x = 1.04
r² = 0.989
Sodium Method Comparison

**Sodium mmol/L**

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>27</td>
<td>113</td>
<td>0.82</td>
<td>0.73%</td>
</tr>
<tr>
<td>Level 3</td>
<td>27</td>
<td>166</td>
<td>1.07</td>
<td>0.64%</td>
</tr>
</tbody>
</table>

**Na⁺**

- **X:** Abbott I-STAT System
  - **Y:** epoc System
  - \( r = 0.982 \)
  - \( n = 63 \)
  - slope = 0.927
  - int' = 10.19
  - Sy.x = 1.82
  - \( r = 0.987 \)

- **X:** RAPIDLab 1265 Blood Gas System by Siemens Healthineers
  - **Y:** epoc System
  - \( r = 0.922 \)
  - \( n = 26 \)
  - slope = 1.010
  - int' = -0.01
  - Sy.x = 2.55

- **X:** Radiometer ABL 700 System
  - **Y:** epoc System
  - \( r = 0.919 \)
  - \( n = 26 \)
  - slope = 1.057
  - int' = -5.30
  - Sy.x = 2.77

- **X:** IL GEM PREMIER 3000 System
  - **Y:** epoc System
  - \( r = 0.939 \)
  - \( n = 58 \)
  - slope = 1.000
  - int' = 1.42
  - Sy.x = 1.05

- **X:** Beckman Coulter
  - **Y:** epoc System
  - \( r = 0.994 \)
  - \( n = 25 \)
  - slope = 0.975
  - int' = -4.15
  - Sy.x = 0.77

- **X:** Dimension Integrated Chemistry System by Siemens Healthineers
  - **Y:** epoc System
  - \( r = 0.871 \)
  - \( n = 36 \)
  - slope = 0.944
  - int' = 8.38
  - Sy.x = 2.18

- **X:** Ortho Clinical Laboratories VITROS System
  - **Y:** epoc System
  - \( r = 0.981 \)
  - \( n = 25 \)
  - slope = 0.975
  - int' = 4.49
  - Sy.x = 2.00

- **X:** Dimension Integrated Chemistry System by Siemens Healthineers
  - **Y:** epoc System
  - \( r = 0.981 \)
  - \( n = 25 \)
  - slope = 0.975
  - int' = 4.49
  - Sy.x = 2.00
## Potassium Method Comparison

### Potassium mmol/L

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>27</td>
<td>2.1</td>
<td>0.043</td>
<td>2.04%</td>
</tr>
<tr>
<td>Level 3</td>
<td>27</td>
<td>6.3</td>
<td>0.075</td>
<td>1.20%</td>
</tr>
</tbody>
</table>

### Analysis of Lines of Best Fit

#### Abbott I-STAT System vs. epoc System
- \( r = 0.997 \)
- \( n = 38 \)
- \( \text{slope} = 0.980 \)
- \( \text{int}' = 0.07 \)
- \( \text{Sy}.x = 0.099 \)

#### RAPIDlab 1265 Blood Gas System vs. epoc System
- \( r = 0.995 \)
- \( n = 26 \)
- \( \text{slope} = 1.023 \)
- \( \text{int}' = -0.11 \)
- \( \text{Sy}.x = 0.082 \)

#### Radiometer ABL 700 System vs. epoc System
- \( r = 0.995 \)
- \( n = 26 \)
- \( \text{slope} = 1.019 \)
- \( \text{int}' = -0.08 \)
- \( \text{Sy}.x = 0.141 \)

#### IL GEM PREMIER 3000 System vs. epoc System
- \( r = 0.995 \)
- \( n = 31 \)
- \( \text{slope} = 0.959 \)
- \( \text{int}' = 0.13 \)
- \( \text{Sy}.x = 0.090 \)

#### Nova Biomedical PHOX System vs. epoc System
- \( r = 0.998 \)
- \( n = 43 \)
- \( \text{slope} = 1.042 \)
- \( \text{int}' = -0.18 \)
- \( \text{Sy}.x = 0.122 \)

#### Beckman Coulter vs. epoc System
- \( r = 0.985 \)
- \( n = 26 \)
- \( \text{slope} = 0.991 \)
- \( \text{int}' = 0.19 \)
- \( \text{Sy}.x = 0.063 \)

#### Dimension Integrated Chemistry System vs. epoc System
- \( r = 0.997 \)
- \( n = 43 \)
- \( \text{slope} = 0.948 \)
- \( \text{int}' = 0.13 \)
- \( \text{Sy}.x = 0.101 \)
Ionized Calcium Method Comparison

### Ionized Calcium mmol/L

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>26</td>
<td>1.53</td>
<td>0.019</td>
<td>1.25%</td>
</tr>
<tr>
<td>Level 3</td>
<td>27</td>
<td>0.67</td>
<td>0.009</td>
<td>1.40%</td>
</tr>
</tbody>
</table>

#### Ca++

- **X:** Abbott I-STAT System
- **Y:** epoc System
- \( r = 0.991 \)
- \( n = 39 \)
- \( \text{Slope} = 0.997 \)
- \( \text{Int.} = 0.00 \)
- \( \text{Sy.x} = 0.025 \)

- **X:** RAPIDLab 1265 Blood Gas System by Siemens Healthineers
- **Y:** epoc System
- \( r = 0.969 \)
- \( n = 25 \)
- \( \text{Slope} = 1.004 \)
- \( \text{Int.} = -0.05 \)
- \( \text{Sy.x} = 0.035 \)

- **X:** RAPIDLab 1265 Blood Gas System by Siemens Healthineers
- **Y:** RAPIDLab 1265 Blood Gas System by Siemens Healthineers
- \( r = 0.979 \)
- \( n = 44 \)
- \( \text{Slope} = 0.960 \)
- \( \text{Int.} = 0.04 \)
- \( \text{Sy.x} = 0.047 \)

- **X:** RAPIDLab 1265 Blood Gas System by Siemens Healthineers
- **Y:** Nova Biomedical PHOX System
- \( r = 0.994 \)
- \( n = 43 \)
- \( \text{Slope} = 0.986 \)
- \( \text{Int.} = 0.00 \)
- \( \text{Sy.x} = 0.039 \)

#### Ca++

- **X:** Nova Biomedical PHOX System
- **Y:** epoc System
- \( r = 0.995 \)
- \( n = 43 \)
- \( \text{Slope} = 0.987 \)
- \( \text{Int.} = 0.00 \)
- \( \text{Sy.x} = 0.039 \)

#### Ca++

- **X:** IL GEM PREMIER 3000 System
- **Y:** epoc System
- \( r = 0.979 \)
- \( n = 31 \)
- \( \text{Slope} = 0.979 \)
- \( \text{Int.} = 0.06 \)
- \( \text{Sy.x} = 0.027 \)

#### Ca++

- **X:** Nova Biomedical PHOX System
- **Y:** epoc System
- \( r = 0.994 \)
- \( n = 43 \)
- \( \text{Slope} = 0.986 \)
- \( \text{Int.} = 0.00 \)
- \( \text{Sy.x} = 0.039 \)
Chloride Method Comparison

<table>
<thead>
<tr>
<th>Chloride mmol/L</th>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td></td>
<td>20</td>
<td>76</td>
<td>0.53</td>
<td>0.69%</td>
</tr>
<tr>
<td>Level 3</td>
<td></td>
<td>20</td>
<td>125</td>
<td>0.94</td>
<td>0.76%</td>
</tr>
</tbody>
</table>

Chloride
X: Abbott I-STAT System
Y: epoc System
n = 64
slope = 0.989
int. = 0.525
Sy.x = 1.033
r = 0.995

Chloride
X: ADVIA® Clinical Chemistry System by Siemens Healthineers
Y: epoc System
n = 50
slope = 0.982
int. = 1.033
Sy.x = 1.250
r = 0.995

Chloride
X: ROCHE COBAS 6000 System
Y: epoc System
n = 53
slope = 0.982
int. = 1.084
Sy.x = 1.773
r = 0.995

Chloride
X: Beckman Coulter DXC System
Y: epoc System
n = 63
slope = 0.990
int. = 4.866
Sy.x = 1.670
r = 0.982

Chloride
X: Radiometer ABL 800 System
Y: epoc System
n = 56
slope = 1.040
int. = -4.866
Sy.x = 0.545
r = 0.982

$r = 0.990$

Chloride
X: Beckman Coulter DXC System
Y: epoc System
n = 63
slope = 0.990
int. = 1.670
Sy.x = 0.928
r = 0.982
## Hematocrit Method Comparison

### Hematocrit %PCV

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>26</td>
<td>25</td>
<td>0.56</td>
<td>2.28%</td>
</tr>
<tr>
<td><strong>Level 3</strong></td>
<td>26</td>
<td>44</td>
<td>1.16</td>
<td>2.61%</td>
</tr>
</tbody>
</table>

### Graphs

1. **Hct**
   - X: Radiometer ABL 825 System
   - Y: epoc System
   - Equation: y = 0.996x + 0.4
   - r = 0.982

2. **Hct**
   - X: RAPIDLab 1265 Blood Gas System by Siemens Healthineers
   - Y: epoc System
   - Equation: y = 1.051x - 4.0
   - r = 0.920

3. **Hct**
   - X: Nova Biomedical PHOX System
   - Y: epoc System
   - Equation: y = 1.052x - 0.4
   - r = 0.986

4. **Hct**
   - X: Sysmex XE System
   - Y: epoc System
   - Equation: y = 1.037x - 2.8
   - r = 0.984

5. **Hct**
   - X: Beckman Coulter LH System
   - Y: epoc System
   - Equation: y = 1.067x - 0.3
   - r = 0.963

6. **Hct**
   - X: Microcentrifugation (spun)
   - Y: epoc System
   - Equation: y = 0.994x + 2.2
   - r = 0.991
Glucose Method Comparison

Glucose mg/dL

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>27</td>
<td>41.9</td>
<td>1.24</td>
<td>2.96%</td>
</tr>
<tr>
<td>Level 3</td>
<td>27</td>
<td>278</td>
<td>6.84</td>
<td>2.46%</td>
</tr>
</tbody>
</table>

**Glucose X: Abbott I-STAT System**

Y: epoc System

r = 0.999

slope = 1.015

int’ = 1.8

Sy.x = 5.59

r = 0.995

slope = 1.048

int’ = -1.7

Sy.x = 6.49

r = 0.989

slope = 1.052

int’ = 4.0

Sy.x = 15.75

r = 0.994

slope = 1.018

int’ = 0.8

Sy.x = 6.82

r = 0.996

slope = 1.016

int’ = -2.7

Sy.x = 7.49
Lactate Method Comparison

<table>
<thead>
<tr>
<th>Method</th>
<th>X: System</th>
<th>Y: epoc System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactate X: Abbott I-STAT System</td>
<td>Y: epoc System</td>
<td></td>
</tr>
<tr>
<td>Lactate X: Radiometer ABL 700 System</td>
<td>Y: epoc System</td>
<td></td>
</tr>
<tr>
<td>Lactate X: RAPIDLab 1265 Blood Gas System by Siemens Healthineers</td>
<td>Y: epoc System</td>
<td></td>
</tr>
<tr>
<td>Lactate X: IL GEM PREMIER 4000 System</td>
<td>Y: epoc System</td>
<td></td>
</tr>
<tr>
<td>Lactate X: Dimension Integrated Chemistry System by Siemens Healthineers</td>
<td>Y: epoc System</td>
<td></td>
</tr>
<tr>
<td>Lactate X: Dimension Integrated Chemistry System by Siemens Healthineers</td>
<td>Y: epoc System</td>
<td></td>
</tr>
<tr>
<td>Lactate X: Dimension Integrated Chemistry System by Siemens Healthineers</td>
<td>Y: epoc System</td>
<td></td>
</tr>
</tbody>
</table>

### Lactate mmol/L

<table>
<thead>
<tr>
<th>Level</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>27</td>
<td>0.97</td>
<td>0.045</td>
<td>4.67%</td>
</tr>
<tr>
<td>Level 3</td>
<td>28</td>
<td>5.96</td>
<td>0.225</td>
<td>3.77%</td>
</tr>
</tbody>
</table>

### Precision

- **Level 1**
  - Precision: n = 27, Mean: 0.97, SD: 0.045, %CV: 4.67%
- **Level 3**
  - Precision: n = 28, Mean: 5.96, SD: 0.225, %CV: 3.77%

### Correlation Coefficient (r)

- **Level 1**
  - r = 0.996
- **Level 3**
  - r = 0.995

### Linear Regression Model

- **Level 1**
  - n = 36
  - slope = 0.998
  - intercept = 0.113
  - Sy_x = 0.480
  - r = 0.996
- **Level 3**
  - n = 23
  - slope = 1.019
  - intercept = -0.207
  - Sy_x = 0.132
  - r = 0.998

### Scatter Plots

- Each scatter plot shows the comparison of lactate measurements between the systems being compared.

### Additional Systems

- **Level 3**
  - **Ortho Clinical Laboratories VITROS System**
  - n = 42
  - slope = 0.938
  - intercept = 0.101
  - Sy_x = 0.398
  - r = 0.999
- **Dimension Integrated Chemistry System by Siemens Healthineers**
  - n = 20
  - slope = 0.987
  - intercept = -0.033
  - Sy_x = 0.120
  - r = 0.996
- **Roche MODULAR System**
  - n = 48
  - slope = 1.039
  - intercept = -0.067
  - Sy_x = 0.264
  - r = 0.996
BUN Method Comparison

BUN mg/dL

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>137</td>
<td>49.9</td>
<td>1.12</td>
<td>2.2%</td>
</tr>
<tr>
<td>Level 3</td>
<td>132</td>
<td>4.9</td>
<td>0.13</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

BUN
X: Dimension Integrated Chemistry System by Siemens Healthineers
Y: epoc System

r = 0.999
n = 64
slope = 0.93
int. = 0.3
Sy.x = 10
r = 0.999

BUN
X: Dimension Vista Intelligent Lab System by Siemens Healthineers
Y: epoc System

n = 146
slope = 0.95
int. = 0.2
Sy.x = 1.6
r = 0.997

BUN
X: Beckman DXC System
Y: epoc System

n = 39
slope = 0.95
int. = 1.3
Sy.x = 0.7
r = 0.999

BUN
X: Abbott ARCHITECT System
Y: epoc System

n = 86
slope = 0.93
int. = 0.7
Sy.x = 0.7
r = 0.997

BUN
X: ROCHE COBAS
Y: epoc System

n = 121
slope = 1.00
int. = 0.2
Sy.x = 18
r = 0.996

BUN
X: Dimension Integrated Chemistry System by Siemens Healthineers
Y: epoc System

r = 0.999
n = 64
slope = 0.93
int. = 0.3
Sy.x = 10
r = 0.999

BUN
X: Dimension Vista Intelligent Lab System by Siemens Healthineers
Y: epoc System

n = 146
slope = 0.95
int. = 0.2
Sy.x = 1.6
r = 0.997

BUN
X: Beckman DXC System
Y: epoc System

n = 39
slope = 0.95
int. = 1.3
Sy.x = 0.7
r = 0.999

BUN
X: Abbott ARCHITECT System
Y: epoc System

n = 86
slope = 0.93
int. = 0.7
Sy.x = 0.7
r = 0.997

BUN
X: ROCHE COBAS
Y: epoc System

n = 121
slope = 1.00
int. = 0.2
Sy.x = 18
r = 0.996
Creatinine Method Comparison

Creatinine mg/dL

<table>
<thead>
<tr>
<th>Precision</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>%CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>20</td>
<td>0.91</td>
<td>0.045</td>
<td>4.93%</td>
</tr>
<tr>
<td>Level 3</td>
<td>20</td>
<td>4.54</td>
<td>0.191</td>
<td>4.21%</td>
</tr>
</tbody>
</table>

Notes

Creatinine
X: ADVIA Clinical Chemistry System by Siemens Healthineers
Y: epoc System
r = 0.998

n = 53
slope = 1.063
intT = 0.115
Sy.x = 0.207
r = 0.998

Creatinine
X: Beckman Coulter AU680 System
Y: epoc System
r = 0.999

n = 63
slope = 1.028
intT = 0.008
Sy.x = 0.166
r = 0.999

Creatinine
X: Abbott I-STAT System
Y: epoc System
r = 0.996

n = 63
slope = 0.955
intT = 0.075
Sy.x = 0.147
r = 0.999

Creatinine
X: ROCHE COBAS 6000 System
Y: epoc System
r = 0.996

n = 50
slope = 1.069
intT = 0.089
Sy.x = 0.201
r = 0.996