Helping you comply, excel and deliver value

16/10/2012
Your concerns, **first** and foremost?

- **Patient flow first.**
- **Patient care first.**
- **Compliance first.**
- **Quality of results first.**
- **Cost management first.**
Laboratorian

- Compliance
- Quality of results
- Workflow efficiencies
Administrator

- Cost management
- Patient outcome
- Patient satisfaction
Clinician

- Right information at the right time
- Patient care
- Operator safety
About Radiometer
Committed to continuous improvement

Radiometer is committed to simplifying and automating acute care testing – *kaizen is our way of life.*
Invention of the blood gas analyzer in 1954 (Astrup); expansion to IA testing in 2008

Today, a solutions provider within acute care testing

In blood gas testing, Radiometer widely recognized as the gold standard

Consider this. Five samples are performed every second on a Radiometer analyzer somewhere in the world.
About Radiometer
Global with local reach

Global company with headquarters in Copenhagen, Denmark

Customers supported in more than 100 countries

Radiometer instruments are used in 19 of the top 25 respiratory hospitals based on U.S. News ranking. U.S. News “Honor Roll” hospitals also use Radiometer.

Honor Roll includes 21 hospitals earning high scores in six or more specialties.
Are you up-to-date?
Are you up-to-date?

- Sources for Scientific knowledge about acute care testing

**acutecaretesting.org**
Your knowledge site

Blood gas app
- for smartphones and tablets

Avoid preanalytical errors app
- for smartphones
What is acutecaretesting.org?

- Knowledge site sponsored and maintained by Radiometer
- Free registration
- Free abstract access
- Free full-text access
What’s acutearetesting.org?

- **Authors:**
  - International experts and healthcare professionals ensuring high quality, relevance and practical experience

- **Articles:**
  - In-between peer reviewed scientific literature and daily practice

- **Journal scans:**
  - Review of peer reviewed literature from a variety of journals

- **Subscribers:**
  - Currently 25,000
What’s acutecaretesting.org?

- Sign up for NEWSLETTER today

- To sign up requires:
  - Name
  - E-mail address
  - The rest is up to you
Celebrating 10 years this month!

- **Chris Higgins**: Why measure blood gases? A three-part introduction for the novice
- **Brad S. Karon**: Acute care testing at the point-of-care: now and in the future
- Timothy Hudson: Use of local anesthesia for arterial punctures
- **Gitte Wennecke**: Useful tips to avoid preanalytical errors in blood gas testing: electrolytes
- **Mario Plebani**: Troponin testing at the point of care: What is needed, and when?
- **Kent Lewandrowski**: POC testing in the emergency department: Strategies to improve clinical and operational outcomes
- **Ole Siggaard-Andersen**: FAQ concerning the acid-base status of the blood
- **Marion Fokkert and Robbert Slingerland**: Point-of-care testing, now and in the near future
- **Dennis Dietzen**: Pediatric considerations in critical value assignment
- **Wilfried von Eiff**: POCT in the ED - relevant clinical and economical advantages
- **Gerard J Myers and Joe Browne**: Point of care hematocrit and hemoglobin in cardiac surgery: a review
Avoid preanalytical errors app

Preanalytical errors account for more than 75% of all errors in laboratory medicine.
About the app

Handbook with video demonstrations

Interactive troubleshooting guide

Skill test
Example from the App

- Introduction

- Example

- To avoid error

- References

Room air contamination of a blood gas sample may alter the values of the sample so that it no longer represents patient status.

The actual bias introduced will have most impact on $pO_2$ and a minor effect on $pCO_2$ and pH [1]. Furthermore the bias on $pO_2$ is highly dependent on volume of room air, initial $pO_2$ value, hemoglobin concentration, mixing of sample and pneumatic tube transport etc [1, 2]. In general, results obtained from capillary samples – particularly $pO_2$ values – should be interpreted with great caution.

Examples

- Two samples are collected from the same patient and measured after 5 minutes. One sample is mixed and air bubbles expelled, the other is not. This may alter patient results as shown below.

<table>
<thead>
<tr>
<th>Sample without air bubbles</th>
<th>Sample containing air bubbles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient results</strong></td>
<td><strong>Patient results</strong></td>
</tr>
<tr>
<td>$pO_2$</td>
<td>70 mmHg (9.3 kPa)</td>
</tr>
<tr>
<td>$pCO_2$</td>
<td>45.6 mmHg (6.1 kPa)</td>
</tr>
<tr>
<td>$sO_2$</td>
<td>94.0%</td>
</tr>
</tbody>
</table>

- 0.2 mL of air is added to a blood gas sample and transported via pneumatic tube. The initial $pO_2$ value is 105 mmHg. After the pneumatic tube transport the $pO_2$ increases to 150 mmHg [2].

To avoid errors

- Visually inspect the sample for air bubbles.
- Expel any bubbles by gently tapping the sides of the syringe right after sampling and before mixing.
- Use arterial blood gas syringes with tip caps that are vented and will allow you to expel air and seal the syringe without getting in contact with blood.

References

...the end...