Implementing standardized venous blood sampling practices in one University hospital in Austria - pilot study

on behalf of the EFLM-WG-PRE
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EFLM-Guideline – Why?

WHO guidelines on drawing blood: best practices in phlebotomy

EFLM-Guideline – Who?

Chair
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Full / Corresponding Members
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Giuseppe Lippi Italy
Mads Nybo Denmark
Michael Cornes UK
Janne Cadamuro Austria
Pinar Eker Turkey
João Tiago Guimarães Portugal
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Svetlana Kovalevskaya Russia
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Ludek Sprongl Czech Rep
Zorica Sumarac Serbia
Edmée van Dongen-Lases The Netherlands

Expert/Consultant
Stephen Church Becton Dickinson
Helene Ivanov Greiner Bio-One
Christa Seipelt Sarstedt


EFLM-Guideline – What?

- Necessary requirements for the blood sampling area and key supplies
- Pre-sampling procedures
- Sampling procedure
- Post-sampling procedures
- Implementation
EFLM-Guideline – Implementation

Potential barriers and challenges

- Resistance to change
- Lack of knowledge, awareness and understanding
- Nobody who is responsible
- Financial
- Lack of staff
- Lack of interest of the hospital management
- Different professions involved in blood sampling
- ...

Framework for a successful implementation

- Raise awareness by teaching potential risks and harms to the patient
- Highlight benefits to the patient, or potential cost savings
- Simply accessible education for newly employed as well as existing staff
- Theoretical AND practical training
- Certification only after successful completion
- Continuous re-training (at least every 3 years)
EFLM-Guideline – Implementation

Framework for a successful implementation

- Periodical audit of knowledge and skills using standardized checklists (at least once a year)
- Sample quality measurement by the lab Qis: ID errors, hemolytic, clotted, ...
- Train the Trainer principle for practical training and auditing
- “Ambassador” responsible to manage the change at the level of the hospital and his/her team of key stakeholders (laboratory, doctors, worker safety, quality department, hospital management, ...)
- National WG on Preanalytical Phase interacting with national societies or organisations or regulatory bodies

Is it practical?

Pilot implementation

**SALK**
- 1818 beds
- ~100,000 Inpatients py
- ~644,000 Outpatients py

**University Hospital Salzburg**
- 1143 beds
- ~77,000 Inpatients py
- ~561,000 Outpatients py

**Pediatric Department (incl. Neo, Surg)**
- 153 beds
- ~7,800 Inpatients py
- ~55,000 Outpatients py

http://maps.google.com; https://de.wikipedia.org user TUBS
Background

- Phlebotomy done by physicians

- National law (GuKG § 15a) permitting to delegate phlebotomy tasks to nursing staff

- Implementation 2013, on pediatric wards 2016 including the following responsibilities:
  - Venous/capillary blood collection
  - Placing IV catheters (except chemotherapy)
  - s.c.-, i.m.-, i.v. therapy (except chemotherapy, blood components, …)

- Requirement: Proof of qualification

What comes with the EFLM Guideline?

Presentation: „A guide to venous blood sample collection and sample handling“

Phlebotomy – Video

Knowledge Test

Observational sheet

Documents will be made freely available over the homepage of the WG-PRE
### Example PPT

#### EFLM WG-PRE Recommendation

<table>
<thead>
<tr>
<th></th>
<th>BD</th>
<th>GreinerBioOne</th>
<th>Sarstedt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blood culture</td>
<td>ISO 6710 / CLSI H1-A5 / CLSI GP41-A6</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Coagulation tube</td>
<td>ESR</td>
<td>ESR</td>
</tr>
<tr>
<td>3</td>
<td>Serum tube (with or without clot activators, with or without gel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Heparin tubes (with or without gel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>EDTA tubes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Glucose tubes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Other tubes (e.g. trace elements)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Example Knowledge test

#### Knowledge test:

Please assign the collection tubes to the correct tube color:

<table>
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<tr>
<th>Tube type</th>
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Example observational sheet

Local implementation

- Implementetation was ordered by the director of the nursing staff
- PPT was translated and transformed into an e-learning module
- Knowledgetest was incorporated into the e-learning module
- Mandatory positive result higher than 69%
  (Phlebotomy certificate only after passing the test)
Local implementation

- 232 nurses

- Subsequent practical training (demo arms)
  Provided 4-8x/year – depending on demand

- Demanding re-training after 2-3 years with automatic e-mail notification

- Evaluation of practical/theoretical skills using observational sheet

- Sample quality monitoring by the laboratory using preanalytical quality indicators (www.ifcc-mqi.com)

Results so far (8.9.2016)

Participants: 232
- Test passed: 204
  - 1st try: 175
  - 2nd try: 22
  - 3rd try: 5
  - 4th try: 1
  - 12th try: 1
- Test failed: 6
- Not tried: 22

Avg. time for going through the module and knowledge test: 32.45 Min
Avg. amount of questions answered correctly: 89.73 %.
CAVE:
Change from (few) clinicians to (many) nurses!
Changes often make it worse in the beginning!

Hemolysis rates in blood samples: differences between blood collected by clinicians and nurses and the effect of phlebotomy training
Results so far (8.9.2016)

Mostly positive feedback

Some negative comments:
- Some Guidelines not practical (e.g. Resting prior to phlebotomy)
- Generates additional working time
Conclusions

✓ Easy to implement following the Guidelines

✓ PPT, knowledge test, observational sheet are valuable tools (easy customizable to fit the local CI regulations)

✓ Accepted very well by the nursing staff

✓ Good standardization even in large collectives

✓ (Beneficial for sample quality) – too early to say

✓ Precondition: Hospital management backing the project

Thank you

On behalf of the EFLM Working Group „Preanalytical Phase”

Ana-Manja Simundic; Kjell Granqvist; Giuseppe Lippi; Mads Nybo; Michael Coomes; Janne Cadamura; Pinar Eker; João Tiago Guimarães; Mercedes Ibarz; Svetlana Kovalenko; Gunn B.B. Kristensen; Ludek Sprongl; Zorica Sumarac; Edmée van Dongen-Lases; Stephen Church; Helene Ivanov; Christa Seipel


https://www.flickr.com/photos/yunir/
Save the Date

http://www.preanalytical-phase.org/