

## **NGSP Level I Laboratory Information Packet**

### **LEVEL I LABORATORY CERTIFICATION**

**General Instructions:** If a laboratory is interested in directly certifying their method as traceable to the Diabetes Control and Complications Trial Reference Method, the laboratory should contact the NGSP Network Coordinator:

Randie R. Little, Ph.D.  
*NGSP Network Coordinator*  
Department of Child Health, Rm. M772  
University of Missouri School of Medicine  
1 Hospital Dr.  
Columbia, MO 65212  
phone: 573-882-1257  
FAX: 573-884-4748  
e-mail: LittleR@health.missouri.edu

**For Level I Certification, laboratories must perform a sample comparison with a Secondary Reference Laboratory (SRL) following the NGSP protocol.** The certification process for Level I Laboratory Certification is the same as that for manufacturers but the certification criteria are more stringent. Level I laboratories are also monitored on a quarterly basis via the exchange of 10 fresh/frozen samples.

Before pursuing certification, laboratories should establish that their analytical instrument systems / methods:

- have had all required preventive maintenance procedures performed
- be operated with the same parameters in all runs of the comparison studies (e.g. instrument, reagent lot, calibrator lot, calibrator assigned values)
- **be operated in the same manner as it is routinely used in the laboratory**

All data should be sent from the laboratory and from the SRL by e-mail directly to the NGSP Network Coordinator (above address).

Laboratories are awarded Certificates of Traceability for specific methods, reagent lots, calibrator lots, instrumentation, etc, if the 95% CI of the differences between methods falls within  $\pm 0.70\%$  HbA1c. Each certificate is effective for one year from the date of certification. In order to maintain continuous certification, the certification process has to be repeated each year. A detailed description of the certification and monitoring process and the certification and monitoring criteria can be found in the NGSP protocol.

Monitoring criteria are identical to those used for network laboratory monitoring (mean difference between laboratories  $\leq 0.35\%$  HbA1c, SD of the difference in sample replicates  $\leq 0.229$ ). Level I Laboratories must submit quarterly monitoring data within 2 weeks of receipt of monitoring samples and pass the criteria in order to maintain their certification status.

## LEVEL I LABORATORY CERTIFICATION

### **DATA SHEET #A:**

Laboratory Name: \_\_\_\_\_

Method / Manufacturer Name: \_\_\_\_\_

Contact person:
Address:
Phone:
FAX:

**fill in all that apply to your method as used during the certification process:**

<b>Instrument</b>

<b>Program, Application, or Conversion Equation (if applicable)</b>

Calibrator Lot #	Assigned Value

Reagent ID (e.g. buffers, hemolyzing reagents, reagent cartridges, etc)	Lot #

Sample collection Device Description (if other than that described by the assay method manufacturer)	Lot #

<b>Column Lot #</b>

<b>**FOR RE-CERTIFICATION ONLY**</b>
<b>check one box</b>
<input type="checkbox"/> prefer certificate to be issued when completed
<input type="checkbox"/> prefer certificate to be issued when previous certificate expires

## LEVEL I LABORATORY CERTIFICATION

### **METHOD COMPARISON AND BIAS ESTIMATION**

For the method comparison, 40 samples are analyzed by both the laboratory and by the SRL; one set of fresh samples may be split and used to evaluate several applications or methods, thus necessitating only one evaluation of 40 samples by the SRL. Patient samples may be collected by either the laboratory or by the SRL as long as the protocol requirements and the sample stability requirements for both the SRL and the laboratory's method can be met.

#### **Procedure:**

1. Specimens (n=40) should be collected with values distributed over a clinically meaningful range, as close as possible to the following:

20% from 4.0-5.5%

30% from 5.5-7.0%

30% from 7.0-8.5%

20% from 8.5-10.0%

The specimens do not necessarily have to be collected in a single day since they will be analyzed over a period of at least 5 days.

2. Keep whole blood samples frozen at  $-70^{\circ}\text{C}$  or colder prior to analysis within 2 weeks of receipt of samples. Do **NOT** store samples at  $-20^{\circ}\text{C}$
2. Each specimen should be analyzed in duplicate.
3. The analyses should be distributed in at least 5 runs on 5 separate days.
4. The duplicate measurement of each specimen is run in reverse order in the same run (e.g. 1,2,3,4,5,6,7,8,8,7,6,5,4,3,2,1).
5. Follow the laboratory's routine quality control procedures during these analyses; repeat any run that is rejected.
6. Record data on Data Sheet #2

#### **Special Instructions for Shipping WB Samples to an SRL for Certification**

1. Be sure to collect samples in the HbA1c ranges outlined in the NGSP method comparison procedures:
  - 20% from 4.0-5.5%
  - 30% from 5.5-7.0%
  - 30% from 7.0-8.5%
  - 20% from 8.5-10.0%
2. Label specimens clearly with waterproof pen. If possible, use consecutive numbers (1-40).
3. Pour well-mixed whole blood specimens into screw-cap vials (minimum volume 0.5 mL).
4. Place specimens in a divided specimen box in order according to specimen ID and freeze at  $-70^{\circ}\text{C}$  or colder.
5. Place box inside a zip-lock bag with absorbent material.
6. Place frozen specimen box/bag with dry ice in an insulated shipping carton.

7. Include a listing of specimens with your shipment; listing should follow the same order as the samples appear in the box. Specify “NGSP certification samples” and the SRL or method by which the samples should be analyzed. DO NOT include HbA1c results with your specimens.
8. For shipment within the US or Canada, ship priority overnight early in the week. For shipments outside the US, make arrangements with an appropriate courier. Notify the SRL of the date of shipment and anticipated date of specimen receipt.

Universal Precautions should be followed when collecting and handling any biological material of human origin. Federal and State regulations should be followed for handling, packaging, and shipping potentially biohazardous materials with regard to containment, labeling, and other procedures.



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### QUARTERLY MONITORING

#### **Procedure:**

1. Specimens (n=10) over the desired clinical range (4-10% HbA1c) are shipped to the laboratory.
2. Keep samples frozen at  $-70^{\circ}\text{C}$  or colder prior to analysis within 2 weeks of receipt of samples. Do **NOT** freeze at  $-20^{\circ}\text{C}$ .
3. Each specimen should be analyzed in two separate runs on two separate days.
4. Follow the laboratory's routine quality control procedures during these analyses; repeat any run that is rejected.
5. Enter data on-line at <http://www.ngsp.org/mmon>. Data must be received within 2 weeks of receipt of monitoring samples.

**NOTE: Level I Laboratories must send in data and pass the quarterly monitoring criteria in order to maintain their certification status.**

Universal Precautions should be followed when collecting and handling any biological material of human origin. Federal and State regulations will be followed for handling, packaging, and shipping potentially biohazardous materials with regard to containment, labeling, and other procedures.



## LEVEL I LABORATORY CERTIFICATION

**Certification Schedule:** Data can be sent anytime. For methods that pass the certification criteria, certificates will be issued within 2 months of receipt of data.

## LEVEL I LABORATORY CERTIFICATION

### **Fee Schedule:**

#### **A. Basic Certification Protocol:**

1. Exchange of 40 fresh blood specimens. These may be collected by the laboratory and shipped to the SRL or vice versa. There are additional charges if the specimens are collected by the SRL (see below).
2. Duplicate analyses by laboratory and by the SRL
3. Laboratory provides method comparison data to Network Coordinator.
4. Data analysis by NGSP Administrative Core (NETCORE) following Bland & Altman Assessment of Agreement for one method.
5. Analysis of 10 specimens shipped quarterly.
6. Monitoring data analysis by the NETCORE.

<b>Cost for certification and monitoring of one method = \$5000.00</b>
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#### **B. Additional Data Analysis (certification and monitoring) for Multiple Applications or Methods:**

1. Bland and Altman Assessment of Agreement analysis
2. Quarterly monitoring

<b>Cost for data analysis and quarterly monitoring for each additional application / method = \$1000.00</b>
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#### **C. Collection of Specimens or Additional Specimen Analysis:**

1. Upon request, the SRL can provide patient specimens
2. Additional specimen analyses may be performed by the SRL

<b>Cost of each specimen shipped by the SRL = \$15.00 plus shipping charges Cost for each additional duplicate specimen analysis by the SRL = \$60.00</b>
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#### **D. Special Sample Preparation**

1. If dried blood spots are included as part of the certification, then the laboratory can either collect blood directly from patients via fingerstick or the SRL must spot blood and check the glucose level of spotted specimens.

<b>Cost for each special sample preparation = \$10.00. This is in addition to the cost of sample collection.</b>
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- E. Payment:** all fees for the above services should be paid to the SRL; a check made out to the SRL should be sent upon receipt of an invoice from the SRL.