



**Description of the electronic
version of the health-surveillance
questionnaire and objective tests
for hand-transmitted vibration**

**Appendix H1D to Final Report
May 2001**

EC Biomed II concerted action BMH4-CT98-3251

WORK PACKAGE WP1H REPORT

Task: Design of an electronic database for health surveillance data that also controls, and stores data from, a battery of test instruments

1. Introduction

The *VINET* Health Surveillance Database is designed to assist in screening programs for vibration-induced white finger in the workplace. The software incorporates a database that stores subject details and associated information about employment, social and medical histories as well as symptoms and diagnostic staging. The database has also been designed to interact with a series of diagnostic instruments, enabling these instruments to be run from within the database and allowing the results to be automatically added to the database and scored. The program allows viewing, printing and editing of subject information and results.

2. Opening and closing the database

To open the database, click on the *VINET* Diagnostic Instruments Manager icon, or select *VINET* Diagnostic Instruments Manager from the Start menu. Once the database is launched, the User Identification dialogue box will appear. Enter your Username and Password and click on the 'Log In' 'button'. To change the password, click on the 'Change Password' button and follow the instructions on the screen. To log in as a visitor on a read-only basis, click on 'Cancel' and follow the instructions on the screen.

Users will have one of three permission levels, allocated by the System Provider or by an on-site 'Admin' user. 'Technician' users may run diagnostic tests and enter clinical information into the database. 'Doctor' and 'Researcher' users may run diagnostic tests, enter clinical information into the database and authorise a record (Section 5.9). 'Admin' users have the

same permissions as 'Doctor' and 'Researcher' users, but in addition to this, may add further users and assign them to different permission levels by clicking on 'Users' in the control panel (Section 3.1). Clicking on the 'Exit Database' 'button' in the control panel will close the database.

3. Using the database

3.1 HVLab Diagnostic Instruments control panel

After opening the database the control panel will appear. The control panel is used to launch the diagnostic tests, to provide access to results and to navigate between subjects.

Clicking on the 'New User' 'button' will allow you to log in as a different user. The 'Current Subject' group shows a summary of the details of the current subject. When the database is opened, the control panel will display the records for the last subject entered.

3.2 Adding a subject

To add a new subject to the database click on 'Add subject' in the control panel. This will open the 'Subject details' dialogue box. To enter data select the relevant field using the mouse, CURSOR keys or TAB key. Then type in the information. Commas can only be used in the 'Address' field. To enter subject sex and preferred hand, click on the 'button' corresponding to the relevant option.

The 'Date and Time of Entry' field at the top right of the screen shows the current date and the 'Record #' field shows a unique counter for that subject. These fields are set by the computer and cannot be edited by the user.

Once the required subject details have been entered click on 'Save' at the bottom left of the dialogue box. This will reopen the control panel and save the subject details that have been entered. To return to the control panel at any time without saving changes click on 'Cancel'.

3.3 Navigation

To swap between subjects, use the navigation 'buttons' at the bottom of the control panel. The first 'button' selects the subject with the earliest 'Last test date' entered into the database. The second selects the subject tested previous to that displayed and the third selects the subject tested after that displayed. The last 'button' selects the subject with the latest 'Last test date'. The number of records shown with the navigation 'buttons' is dependent on the number of subjects entered in the database.

3.4 Searching the database

To find the records for a particular subject click on 'Search' in the 'Subject Details' group. This will open the 'Find' dialogue box. Enter text (e.g. subject name, reference number or subject record ID) you want to find in the 'Find What' box. The 'Search' box allows you to search towards the first record, towards the last record or through the entire table. Ensure that the 'Search only current field' is not selected, unless you want to search only that field, and click on 'Find first'. It is also possible to search for fields by entering part of the text in a particular field and selecting 'Any part of field' in the 'Match' box. When the correct subject has been selected, as indicated in the control panel, close the 'Find' dialogue box.

3.5 Deleting a subject

Deleting subjects from the database should be done with caution, as it is not possible to restore deleted information. To delete a subject, search for the subject you wish to delete (Section 3.3.1). Click on 'View' in the 'Subject Details' information group. Click on 'Delete Subject' to remove the subject. Confirmation of this action is required.

3.6 Subject details

To view the full details for the current subject click on 'View' in the 'Subject Details' information group in the control panel. This will open the 'Subject Details' dialogue box. To return to the control panel click on 'Close'.

NB The computer on which data is entered must be set up to use the British date format (i.e. day/month/year). Use of the U.S. date format will cause the date field to switch day and month when entered in the British date format. This will result in erroneous data being recorded for some dates.

4. Diagnostic tests

4.1 Running a test

To run a diagnostic test for a subject, first select that subject using the control panel (Section 3.3). Click on 'New Test' in the 'Run Test' group. Enter the room temperature, finger skin temperatures and tester ID in the 'Test Details' group. Finger skin temperatures can be measured using the *HVLab* Thermal Aesthesiometer (see Thermal Aesthesiometer User Guide). The software will not permit a new test to be run until this information has been recorded. Click on the relevant diagnostic instrument 'button' to launch the software that controls the test apparatus. Refer to the relevant diagnostic instrument User Guide for instructions on completing a test.

The screenshot shows a 'Launch Test' dialog box with the following fields and controls:

- Current Subject:**
 - Surname: Smith
 - Forename: John
 - Reference number: 01/15
- Test Details:**
 - Date of Measurement: 30/5/2001 08:53:30
 - Room temperature: [] °C
 - Skin temperature (left): [] °C
 - Skin temperature (right): [] °C
 - Tester Identification: ChrisL
- Buttons:** TA Test, CPT Test, VTT Test, Plethysmograph Test
- Checkboxes:**
 - Manual data entry
 - Close database on opening test
- Cancel** button

Click on 'Save Test Results' to return to the control panel). After completing the test save the results and exit from the program to return to the database.

Once the diagnostic test program is closed, the 'Import data' dialogue box is opened to confirm that the data should be imported. Click on 'OK'. The results of the test that has been performed are then displayed in the 'Results' dialogue box. To add these results to the database, click on 'Save Test Results'. This will return you to the control panel. In the networked version of the database, click on 'Update Network' to allow other workstations to view the test results.

To return to the control panel without adding the results to the database click on 'Cancel'. If the diagnostic instrument controlling software fails to function correctly or the test is not completed, any imported data is not considered reliable and cannot be saved, click on 'Cancel' to return to the control panel.

4.2 Running further tests

To run repeat tests on a subject, proceed as if the first test on that particular test apparatus were being performed (Section 4.1).

4.3 Viewing test results in the database

To view the test results for a subject first select that subject using the control panel. Then click on the relevant test in the 'Results' group. This will display the 'Results' dialogue box for that test. On opening the 'Results' dialogue box, the results for the last test to be performed are shown. Use the navigation controls to cycle through results for repeated tests, if any. The results are sorted according to the test date.

Thermal Threshold Results

Thermal threshold test results Subject Record ID: 48

These records were last viewed on: 12/1/2000 16:47:55 Entry Date: 23 July 1999

Subject Details		Test Parameters	
Surname:	Test	Number of tests:	4
Forename:	Person	Reference temperature:	32.5 °C
Date of birth:	25 May 1976	Temperature increment rate:	1 °C/second
Reference:	1234	Temperature decrement rate:	2 °C/second
		Number of measurements:	4
		Delay between measurements:	1 seconds
		Data File Path Name:	C:\HVWLWIN\DATA\TESTDB.TAD

Test Details		Test Results					
Room temperature:	23 °C	Test Site	Cold threshold (°C)		Hot threshold (°C)		Neutral Zone (°C)
Skin temperature (left):	30 °C		Mean	StDev	Mean	StDev	
Skin temperature (right):	30 °C	r2	24.56	5.76	39.62	3.39	15.06
Test Date:	23 July 1999	r5	30.18	0.88	40.58	0.10	10.40
Technician:	mjh	r2	31.35	0.05	43.53	1.44	12.18
		r5	20.48	0.90	33.91	0.07	13.43

Record: 2 of 2

If no test results are available for a subject a warning dialogue box is opened to state this. Click on 'OK' in this dialogue box, and then click on 'Cancel' in the 'Results' dialogue box to return to the control panel.

4.4 Printing Summary Test Results

To print a summary of the results of all of the tests for the selected subject, click on 'Print All' in the 'Control Panel' screen.

5. HEALTH SURVEILLANCE QUESTIONNAIRE

5.1 Adding a clinical examination

To enter clinical information for a subject, first select that subject in the control panel. Then click on 'New Examination' in the 'Clinical Information' group. This will open the 'Health Surveillance Questionnaire' home screen. The subject's surname, forename(s) and date of birth cannot be edited in this screen. Enter the required information into the relevant fields,

using the mouse, TAB key or CURSOR keys to navigate between fields. Click on 'Close' to return to the control panel. Any information entered will automatically be saved.

The screenshot shows a web-based form titled "Clinical Information Database" and "Health Surveillance Questionnaire". The form is for "Subject Record ID: 62" and "HSQ ID: 275". It contains several input fields and sections:

- Test Centre:** ISVR
- Subject Details:**
 - Surname: Smith
 - Forename: John
 - Date of birth: 26 March 1962
 - Reference: 01/15
 - Button: Show Subject Details
- Other Details:**
 - Preferred hand: Right Left Either
 - Gender: Male Female
 - Marital Status: Married (dropdown)
 - Height(cm): 185
 - Weight(kg): 102
- Entered by:** ChrisL
- Entry Date:** 09 April 2001
- Close** button and a right arrow button.
- Jump to another Section:** Occupation, Social History, Medical History, Symptoms, Staging (all buttons are greyed out).
- Record:** 1 of 7 (with navigation icons)

5.2 Occupational History

Click on 'Occupation' to open the 'Occupational History' screen. Enter the required information into the relevant fields. Information must be entered in all fields that are not greyed out.

Symptoms
Occupation history HSQ record #: 275
Entry Date: 09 April 2001

Details of current occupation (if any)

Start date of current job : 1/1/1998 Company: Southern Water
 Job Title: Pipe Layer WorkArea: Pipe maintenance
 Description of Work: Laying pipes for Southern Water

History of exposure to hand-transmitted vibration

Does your current job involve the use of powered tools that vibrate your hands? Yes No Show tools used in current job

Date of first significant exposure to hand-transmitted vibration: 01/01/1979 at age: 17 Show tools used in previous jobs

Description of previous work involving exposure to hand-transmitted vibration: A variety of jobs, mostly involving labouring in the building trade over a period of twenty years.

In your spare time have you ever used a tool or machine that made your hands vibrate for more than one hour per week? Yes No Show tools used in spare time

← →

Home Occupation Social History Medical History Symptoms Staging

Click on “Show tools used in current job” and enter the required details.

Symptoms
Vibration exposures in current job HSQ Record #: 275
Entry Date: 9/4/2001 12:51:46

Company Name	Job Title	Tool Description	Frequency of regular use			Period of regular use (dates)	
			hours/day	days/week	weeks/year	start of use	end of use
Southern Water	Pipe Layer	Jack hammer	5	3	45	1/1/1975	9/4/2001
Southern Water	Pipe Layer	Cutting Disc	3	1	45	1/1/1975	18/5/2001
Southern Water	Pipe Layer	Chipping Hammer	1	2	45	1/1/1980	5/1/1995
Southern Water	Pipe Layer	Vibrating Roller	2	5	45	1/1/1981	18/5/2001
Southern Water	Pipe Layer	Lining Machine	5	5	45	1/1/1978	18/5/2001

← Add Tool

When all details of all currently used tools have been entered, click on the back arrow to return to the “Occupational History” screen. Details of tools used in previous jobs and leisure time should then be entered by clicking on “Show tools used in previous jobs” and “Show tools used in spare time” respectively. When the “Occupational History” information is

complete, click on the forward arrow to open the first 'Social History' screen. It is also possible to click on 'Home' to return to the home screen and edit earlier entered data.

5.3 Social History

Click on 'Social History' to open the first 'Social History' screen. This section contains 2 screens requesting information on smoking and alcohol consumption. Use the forward and backward arrows at the bottom of the form to navigate between screens.

5.4 Medical History

Click on 'Medical History' to open the first 'Medical History' screen. The 'Medical History' section contains two screens.

5.5 Symptoms of HAVS

Click on 'Symptoms' to open the first 'Symptoms' screen. The 'Symptoms' section contains 11 screens requesting information on whiteness, tingling, numbness and muscular symptoms. Use the forward and backward arrows at the bottom of the form to navigate between screens. The whiteness, tingling, numbness subsections contain forms for indicating which parts of the hands are affected. These forms automatically calculate and scores for each hand based on which areas are checked.

Symptoms

Symptoms: Whiteness page 3

HSQ Record #: 275
Entry Date: 09 April 2001

Whiteness symptoms

Which hands and fingers are affected (check the boxes)?

Is the right hand affected:

Is the left hand affected:

Whiteness score right: 7

Whiteness score left: 4

Total whiteness score: 11

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5.6 Diagnostic Staging

The “Staging” section contains two screens for indicating the sensorineural and vascular staging. Check the box in each screen which corresponds to the appropriate stage for the hands.

Symptoms

Diagnostic Staging: Vascular

HSQ Record #: 275
Entry Date: 09 April 2001

Stage (please select)

No attacks 0

Occasional attacks that affect only the tips of one or more fingers 1v

Occasional attacks that affect the distal and middle (rarely also proximal) phalanges of one or more fingers 2v

Frequent attacks affecting all phalanges of most fingers 3v

As in stage three, with trophic skin changes in finger tips. 4v

← →

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