

INSTALLING OASYS-2

Insert disc and double click on "Setup.exe"

Enter your details in to the Oasys-plot setup box and click on Continue.

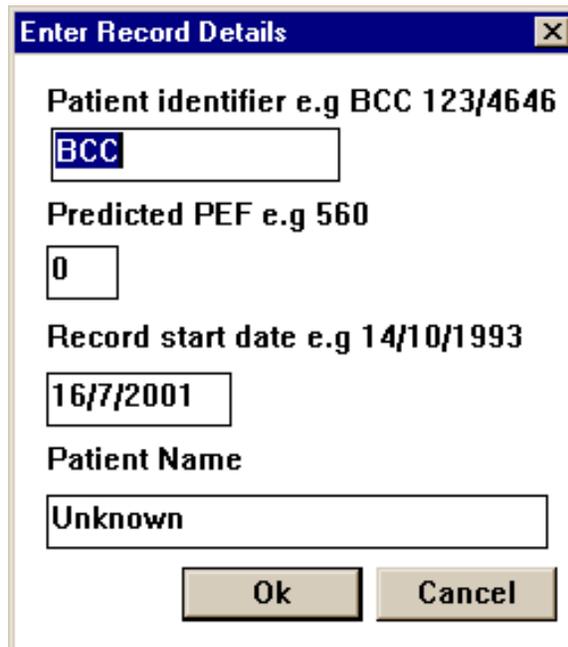
The program will now start with an example PEF.

Creating a New Record

- Click on "**File – New Record**" from the menu or use the button shown below.



- Enter the patient's name, hospital id, predicted peak flow and the start date of the peak flow record. This can all be changed later if required. The hospital id and predicted peak flow can be left blank if not known.
- Click on "**OK**" and the data entry window will open.



Enter Record Details [X]

Patient identifier e.g BCC 123/4646
BCC

Predicted PEF e.g 560
0

Record start date e.g 14/10/1993
16/7/2001

Patient Name
Unknown

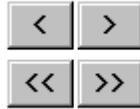
Ok Cancel

The Data Entry Window

It is highly recommended that your desktop is at least 800x600 pixels, in which case the entire data entry window will fit on the screen.

Data is entered using the number pad on your keyboard and **requires “Num Lock” to be On.**

Initially the box in the top left corner (1am on the first day) is set as the current box and a flashing cursor can be seen in it. To move to another box either click on that box with the mouse or use the “**up / down**” arrows on the keyboard. To view a different week use the “**Next / Previous**” buttons shown below, which move the date forward / backward by one day or one week.



To enter a reading in a box simply type in the first two digits of the number. Oasys will automatically add a zero to this number to save you time. For example if a reading is “**560**” you only need to type in “**56**”.

To input the times for waking, start of work, end of work and going to bed use the symbols around the number pad on the keyboard as shown below. The letter shown in brackets will appear next to the current box. Use the delete key on the number pad to remove these. Note that **only the keys on the number pad can be used.**

- / Waking (w)
- * Bed (b)
- Start of work (s)
- + End of work (e)

Oasys “**interprets**” the peak flows and groups together all the readings that are exposed at work and all the ones that are not. This is not just as simple as looking at work days and rest days. For example a reading before work on a work day is not affected by any exposure on that day. To “interpret” the peak flow readings Oasys requires that all these waking (and other) times are in the correct order.

Click on the “Interpret” button to perform the interpretation. The data entry screen will change to show you how the data has been interpreted. If the waking (and other) times are not in the correct order then an error message will be displayed and any **invalid markers will be shown in capital letters**, as opposed to the lower case normally used (“**W**” as opposed to “**w**”). In order to complete the data entry correct these entries. Press the “Interpret” button to check before moving on.

Saving Data

The record can be saved at any time using “**File – Save**”, the button below or “**File – Save As**”. It is safer to use “**File – Save As**” the first time you save a file to avoid an occasional bug in the program. Please note that Oasys **does not check for overwriting** so it is very important to **check that the filename does not exist already**.



The file is saved as a .ODF or .OD1 file (explained later). Other files are also created (such as .DID), which you do not need to worry about.

Opening a Record

Click on “**File - Open**”. Or click on the button shown below.



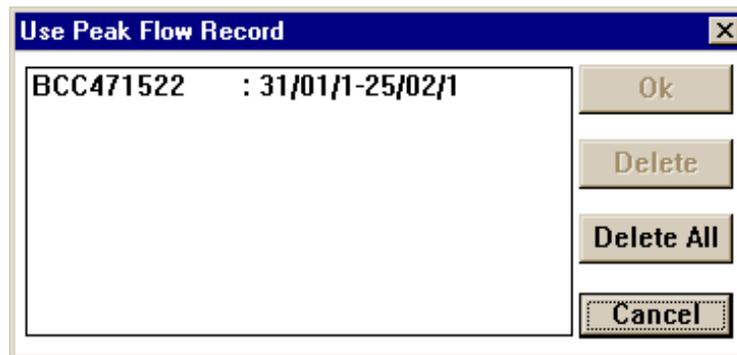
Click on “**Record – Edit Record...**” from the menu to show the data entry window and edit / add data.

Click on “**Record - Max, Min, Mean (day interpretation)**” to show a daily graph of the record using data “Interpreted” by Oasys.

Click on “**Record - Max, Min, Mean (solar interpretation)**” to show a daily graph of the record without interpretation (not recommended).

Click on “**Record – Plot By Day**” to show a traditional graph of peak flow versus time. We find that this is of limited use and prefer the daily graphs above where the data is aggregated for each day.

In each case a window will first be displayed showing the hospital id and dates of all records currently loaded. Double click on the one that you are interested in. The most recently opened record is always the bottom of the list.



Miller Correction

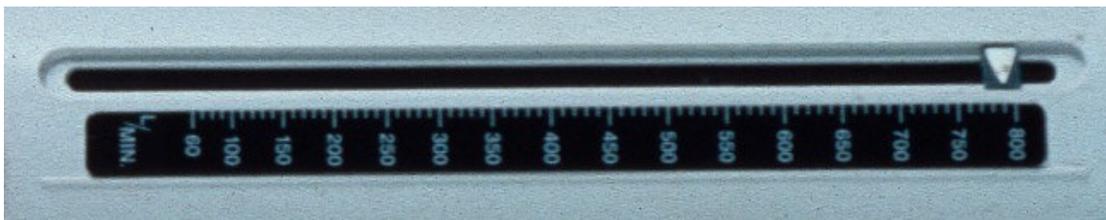
The Mini-Wright peak flow meter over reads low readings and under reads high readings. To compensate for this there is a facility on Oasys-2 to Miller correct the readings.

Click the button shown below to Miller Correct a record that was recorded using a mini-wright non linear meter (the new EU mini wright meters are linear so no correction is required).

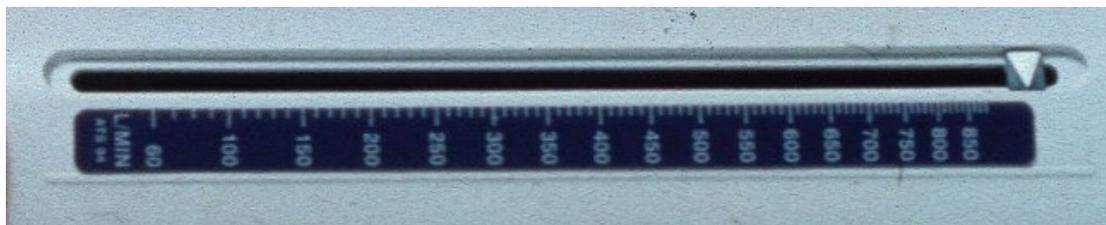


A warning message is shown advising that the correction is only valid for mini wright non linear meters.

You are asked whether to correct the readings in memory (in which case the correction is lost when you exit the program, but can easily be applied again), or to permanently correct the readings. In this case a file is saved to disk with a ".OD1" extension. Next time you open the file you can choose to open the ".ODF" file (which will contain non corrected readings) or the ".OD1" file, which will contain the corrected readings.



A Mini Wright Non Linear meter (requires Miller Correction)



A Mini Wright Linear Meter (should not be corrected)

Displaying the Graph

After entering data for a record click on **“Record - Max, Min, Mean (day interpretation)”** to show a graph of aggregate data for each interpreted day in the record. This is the graph that we recommend the use of. Other graphs are available as described previously.

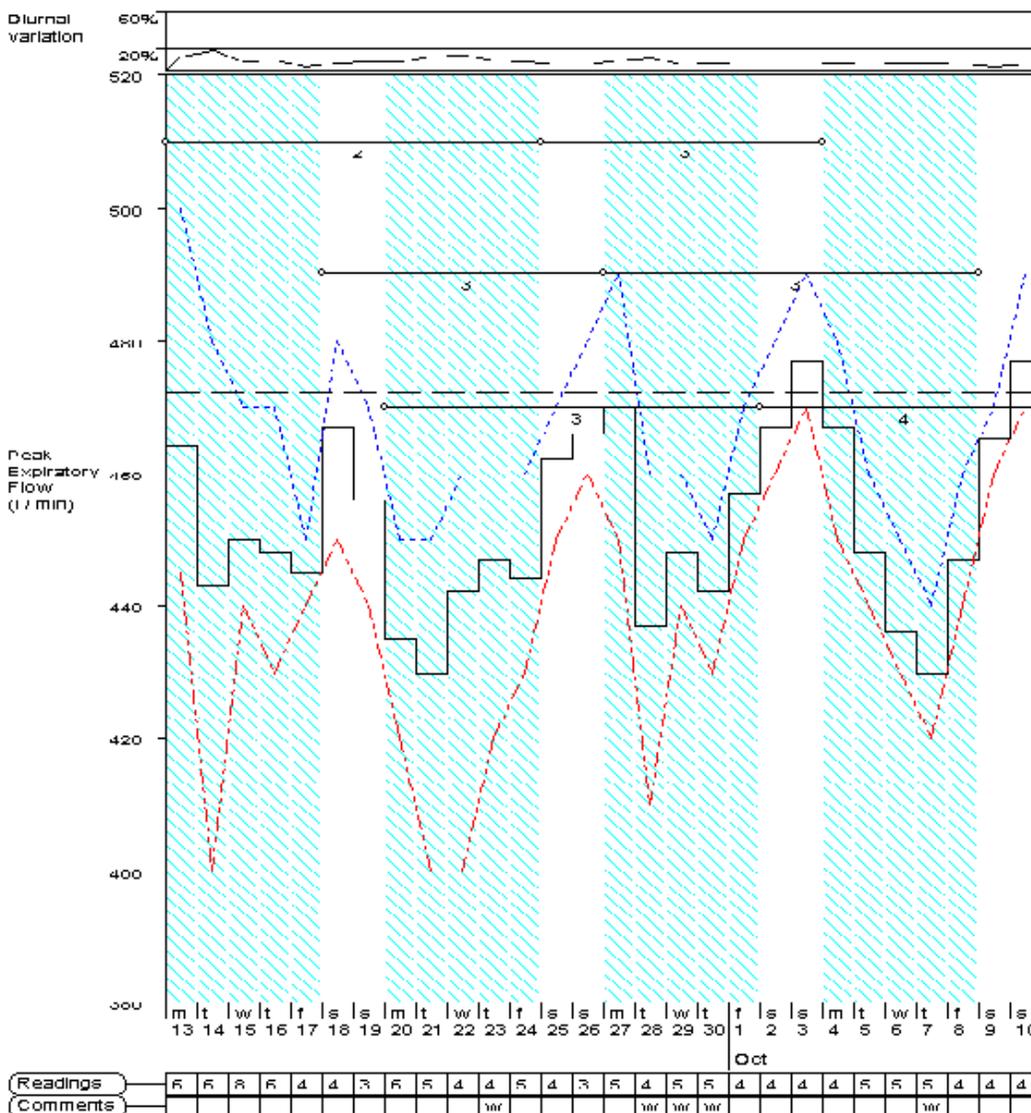
The three lines on the graph represent the **maximum** (the dashed blue line at the top), the **minimum** (the dashed red line at the bottom), and the **mean** (the black, step like, line in the middle) PEF recorded for each interpreted day. The horizontal dashed black line shows the predicted peak flow. Once the report has been opened the graph will also show an Oasys work effect score (explained later) for each **“rest – work – rest”** and **“work – rest – work”** complex.

The shaded periods show days at work (different patterns for different shifts) and the clear periods shows days away from work.

The small graph at the top shows the diurnal variation. The diurnal variation can be calculated as a percentage of the whole record mean or as a percentage of the predicted peak flow, which we recommend. To use this, click on **“Graph – Amp % of Mean (Day)”** to untick it. Next click on **“Graph – Amp % of Predicted PEF”** to tick it.

The X Axis shows the day, date, number of readings taken and whether there is a waking reading for the day (if not a “w” is shown in the “Comments” area).

The graph below shows clear deterioration at work.



Printing the Graph

Click on “**File – Print**” from the menu or use the button shown below.



A preview can be shown by clicking on “**File – Print Preview**” from the menu or using the button shown below. Clicking again will return to the normal view.



The printing options can be viewed and edited by clicking “**File - Print Configurations - Max, Min, Mean Print Setup**”. The page margins can be set here along with the x and y scales. It is highly recommended to use the default scales for consistency so that pattern recognition is made easier. These are **20 “Litres / 1cm Ratio”** and **0.5cm “Width per day (cm).”**

The page orientation (portrait or landscape) can only be changed from the print preview. On the left of the preview is a button showing “**P**” (for Portrait). Click it once and the orientation will change to landscape and the button will now show “**L**”. Click it again to return to portrait.

Once printed the graph can be included in a patient’s notes.

Producing a Report

The Oasys program produces a report of the peak flow record in addition to the Max / Min / Mean Graph. To open the graph window press the toolbar button shown below. The report can be 6 or more pages so use the scroll bar on the right hand side of the window to view all of it. **The report can only be shown after viewing the graph.**



The report displays patient demographics, lengths of working and days off, diurnal variations by shift, quality control, number preference, hourly graphs, shift trend graphs and the Oasys Work Effect Index.

Oasys Work Effect Index

The Oasys work effect index gives a score between 1 and 4 (or zero if nothing to score). Scores above 2.5 have a 94% specificity for occupational asthma and a 75% sensitivity when using independent methods of diagnosis. A sensitivity of 75% means that 75% of those with true occupational asthma have a positive Oasys score of greater than 2.5. 25% of those with a score less than 2.5 will also have true occupational asthma, so a negative score cannot be used to exclude occupational asthma.

A specificity of 94% means that 94% of those without occupational asthma will have an Oasys score less than 2.5. There will be 6% of those without occupational asthma who have a false positive Oasys score.

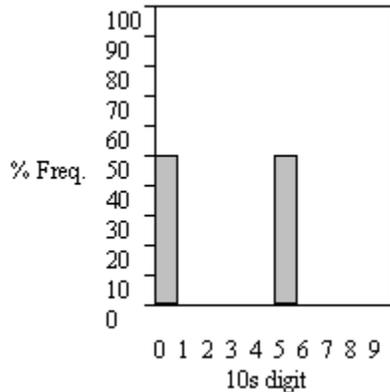
Number Preference

The number preference graph shows the the percentage of each tens digit (the “1” in 510) for all the readings in the record.

If 0 and 5 are prominent then the patient is probably rounding to the nearest 50 and requires further technique instruction.

Prominence in other numbers is a sign of fabrication, as the patient may have written down the same number many times.

The graph below shows clear rounding to the nearest 50.



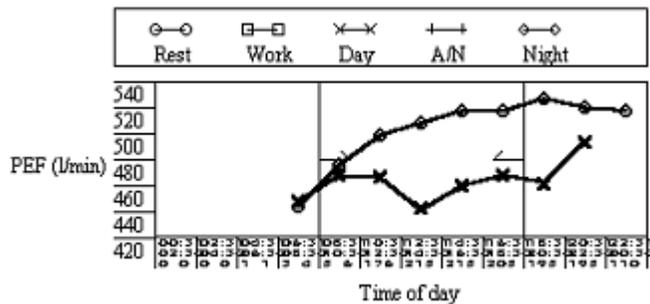
Hourly Plots

Each point on the hourly graph shows the mean of all readings taken at a particular time of day. The graph shows the diurnal variation for rest and work days for comparison and to look for early and late reactions.

There is one graph for each different shift type.

A point is only shown if there are at least 3 readings to make the mean.

The graph below shows a clear deterioration at work when compared to days off work.



Shift Trends

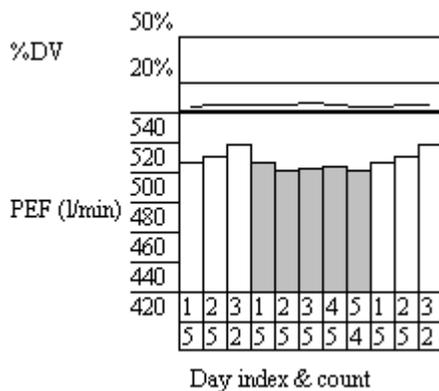
The first white column on the shift trend graph shows the mean of all readings taken on the first rest day after working. (eg the mean of all Saturday readings in a Monday – Friday working week). The second white column (if applicable) shows the mean of all readings taken on the second rest day after working (eg the mean of all Sunday readings in a Monday – Friday working week), and so on.

The first grey column on the shift trend graph shows the mean of all readings taken on the first work day after a period off work. (eg the mean of all Monday readings in a Monday – Friday working week). The second grey column shows the mean of all readings taken on the second work day after a period off work (eg the mean of all Sunday readings in a Monday – Friday working week), and so on.

The second set of white columns on the right hand side are an exact copy of the first set and are purely a visual aid.

This graph can be used to compare working and resting and to see how quickly a patient deteriorates and recovers.

- If there is only one day to make up the mean then a column is not shown.
- The graph below clearly shows continuing improvement for at least the first three days away from work and deterioration at work within the first day or two.



Analysis and Data Quality Section

Sections “E” and “F” show the number of readings per day, the length of work / rest periods and the number of blank days. The other headings do not contain data. There were plans to develop this part of the program but this has not happened as yet.

Printing the Report

To print the report, click on “File – Print” on the menu or click on the icon below.



The last page contains the **Analysis and Data Quality Section** so does not need to be printed.

Once printed the report can be included in a patient’s notes.

References

Development of an expert system for the interpretation of serial peak expiratory flow measurements in the diagnosis of occupational asthma. P S Burge, C F A Pantin, D T Newton, P F G Gannon, P Bright, J Belcher, J McCoach, D R Baldwin, C B S G Burge, and the Midlands Thoracic Society Research Group. *Occupational and Environmental Medicine*, November 1999, Vol 56, No11, p758-764.