

International Newborn Size at Birth Standards: Application



User guide

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March 2017

HOW TO

1. INSTALL AND OPEN THE APPLICATION

WHERE CAN I FIND THE APP AND HOW DO I INSTALL IT?

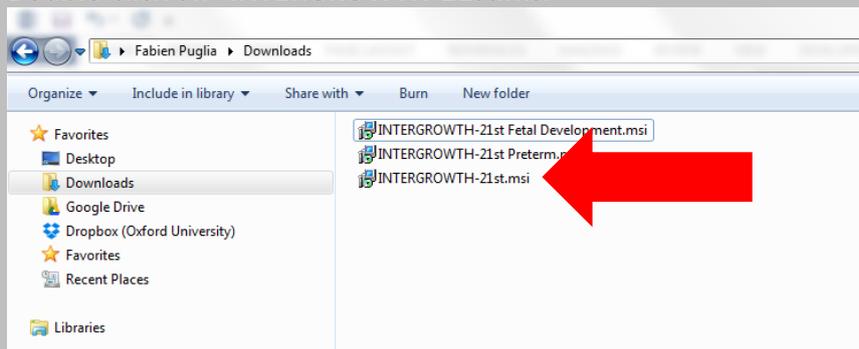
The International Newborn Size at Birth Standards application can be on the INTERGROWTH-21st website on the Global Health Network:
<https://intergrowth21.tghn.org/standards-tools/> or <http://bit.ly/IG21Tools>.

The application is available in 3 formats: for Windows, for Apple Mac and an online browser-based version, which requires internet connection.

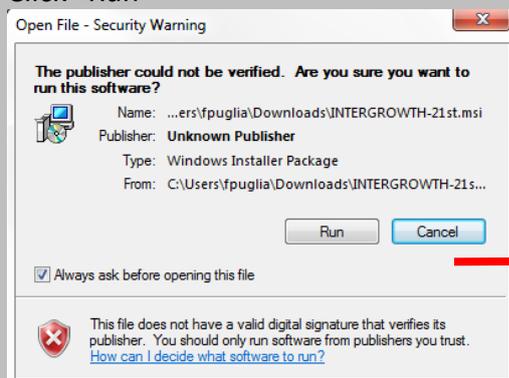
If you choose to download the application, it should by default be saved in the “Download” folder (unless you changed your preferences). Once downloaded, proceed to install the application.

On Windows

Double-click on “INTERGROWTH-21st.msi”



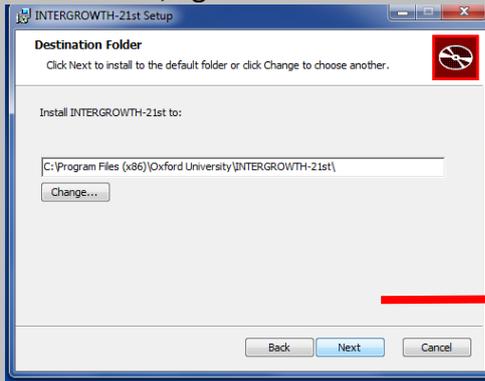
Click “Run”



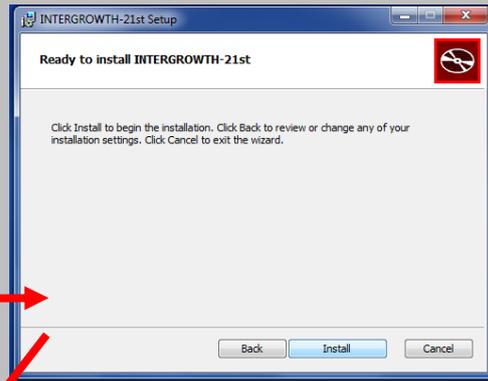
Click “Next”



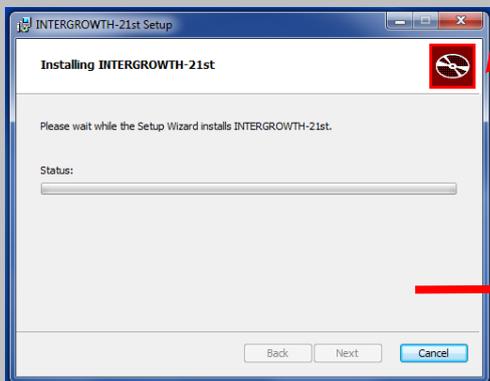
Click "Next", again



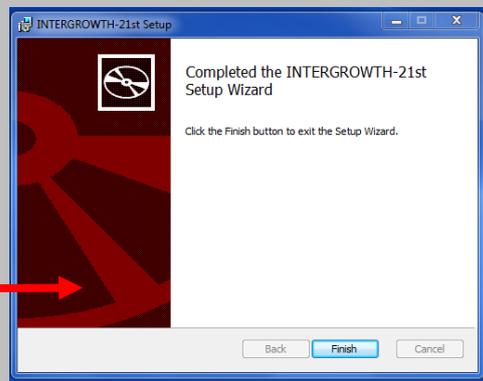
Then click "Install"



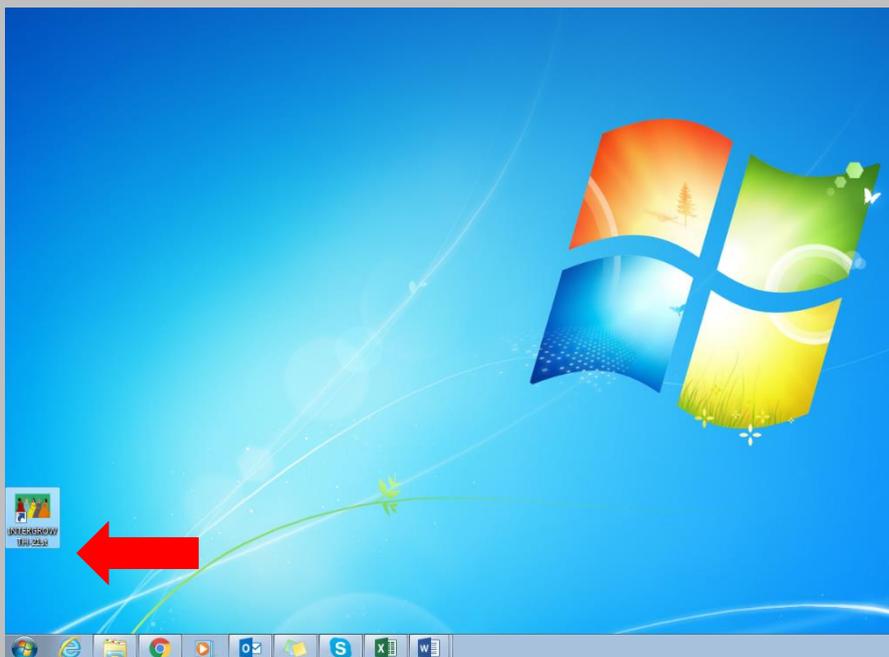
A screen will appear and your computer will ask permission to install the program. Click 'Yes'



Once the installation is finished, click 'Finish'



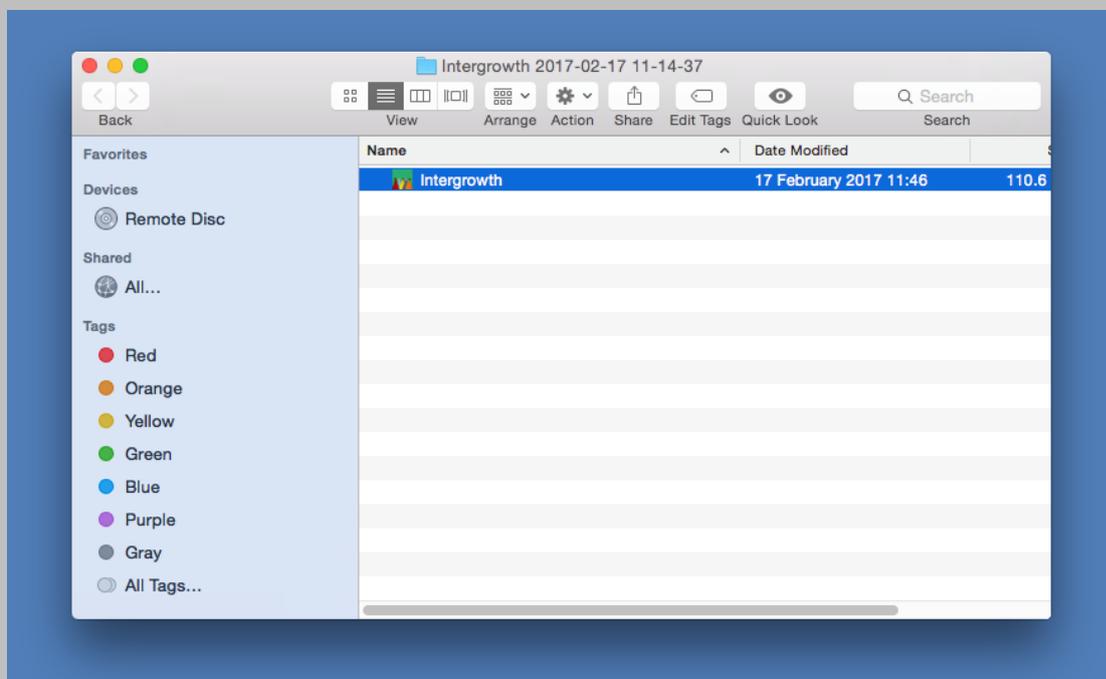
An icon will appear on your desktop.



Note that other versions of Windows may differ slightly.

On an Apple Mac

Go to the “Download” folder, select and open the “Intergrowth 2017-02-17 11-14-37” file (the name of the file may change for more recent versions of the application). The computer will unzip the file.



Once installed, you can (1) move the app to the “Launchpad” or (2) pin it in the “Dock” or (3) create a shortcut on the desktop.

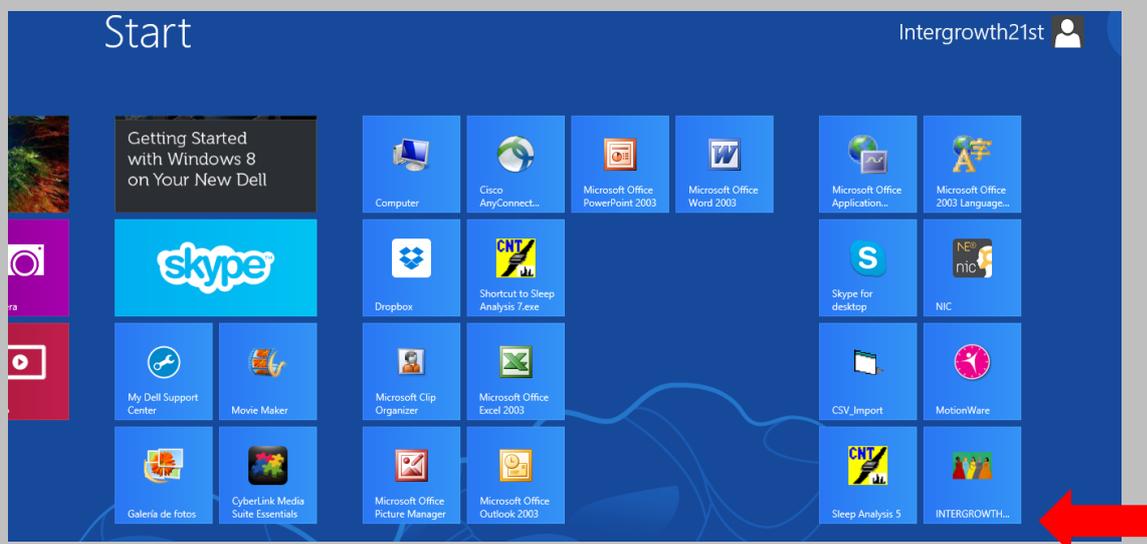
When you open the application, the INTERGROWTH-21st application icon will appear in the dock. The app can be used by clicking on this icon.



HOW TO OPEN THE APPLICATION

For Windows 7 and above

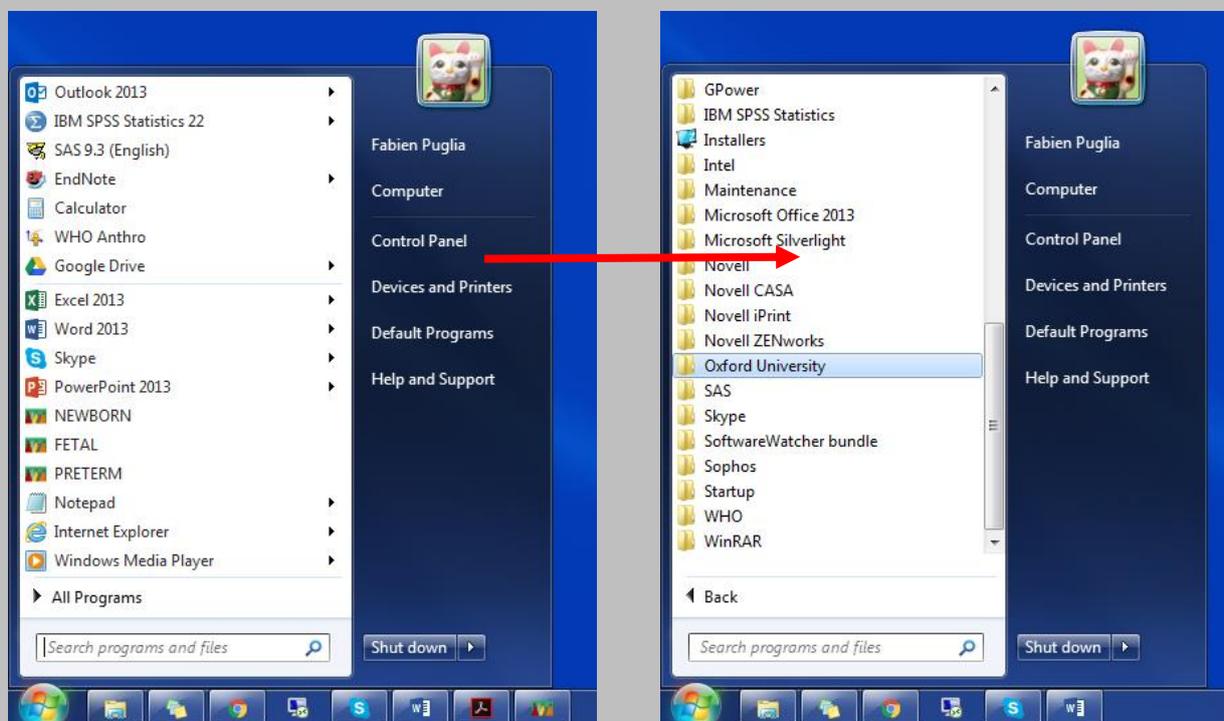
Open the INTERGROWTH-21st application



For previous versions of Windows

Click on the icon on the desktop or

Click on the “Start” icon at the bottom left of your screen. Go to “All programs”, then “Oxford University” folder and select the INTERGROWTH-21st Standards for Size at Birth application from the list.



On an Apple Mac

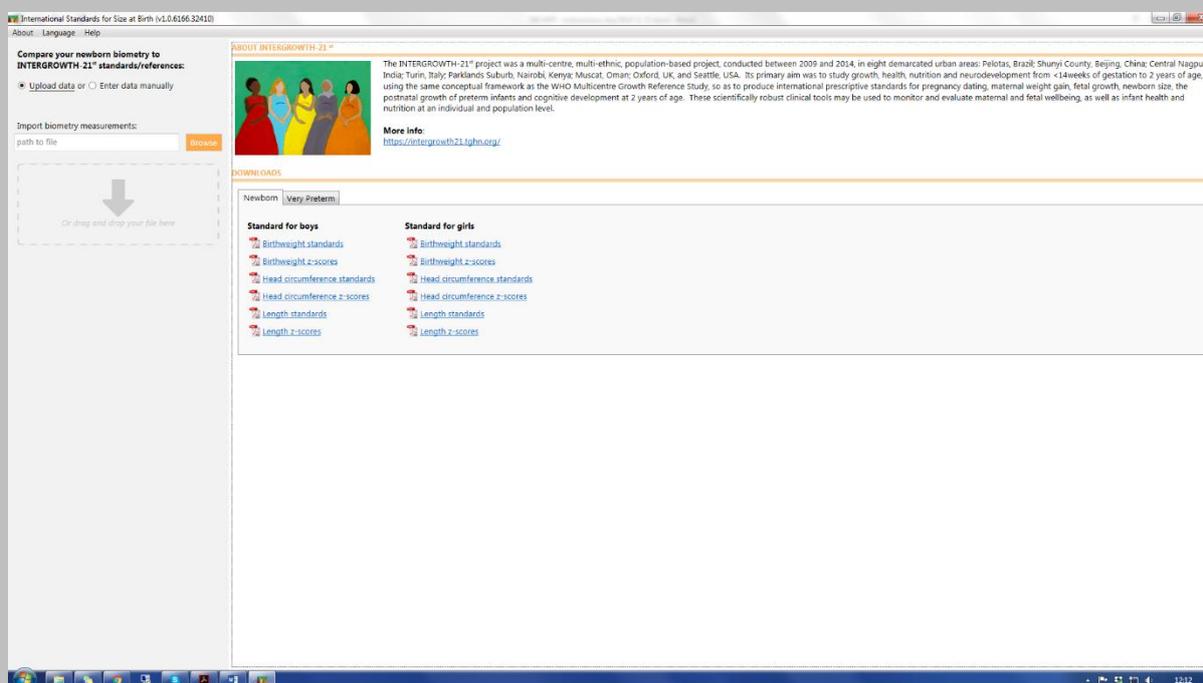
Click on the application icon to open it. The application can be found on the Launchpad, dock bar or desktop, depending on how you set it up.

DESCRIPTION OF THE APPLICATION

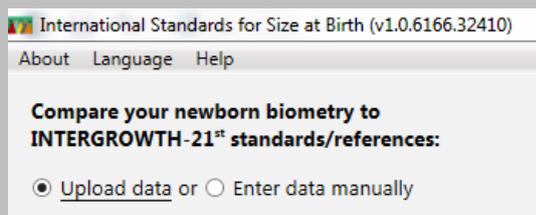
The application first opens on its home screen. The home screen is divided into 3 panes:

- On the upper right pane, there is a brief description of the INTERGROWTH-21st Project and a link to the Project's website
- On the lower right pane, you will find 2 tabs "Newborns" and "Very preterm", which contain links to the tables of centiles and z-score values for weight, length and head circumference
- On the left pane, you will find options to enter data manually or upload the file

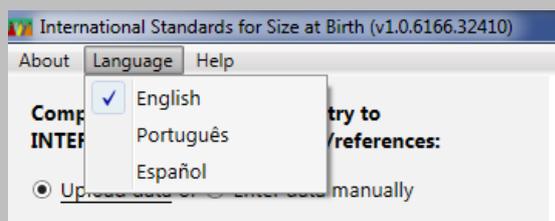
Home screen



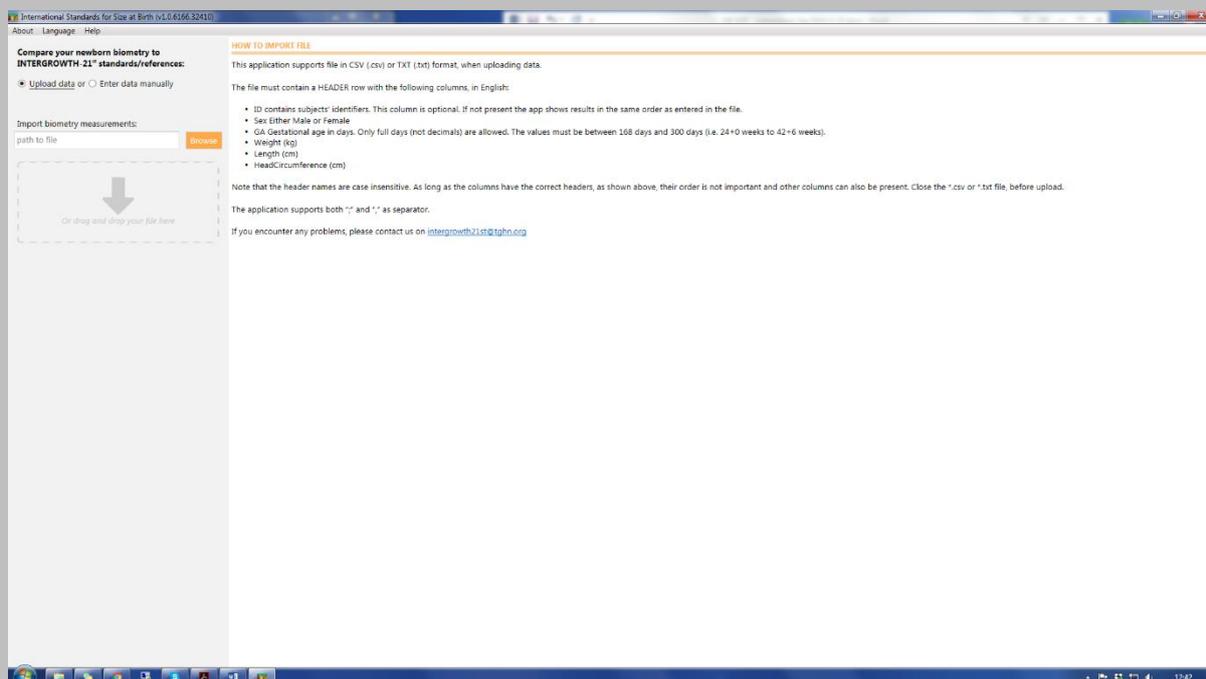
The menu bar at the top of the home screen has 3 options:



1. "About" takes you back to the home screen
2. "Language" offers the user a language option (English, Portuguese or Spanish) to operate the app. Choose the appropriate one for you



3. "Help" takes you to the help screen where you can find instructions on how to format your data correctly as well as an email address to contact us if you encounter any problems



The application is ready to use!

HOW TO

2. COMPARE THE SIZES OF MANY NEWBORNS TO THE STANDARDS

WHAT THE APP CAN DO FOR YOU

The application allows you to upload a *.csv or *.txt file with biometric data for an unlimited number of newborns (as an input), and download a file with z-scores and centiles for all biometric data (as an output).

HOW TO PROCEED

1. Prepare your data

The easiest way to proceed is to create a file in Excel according to the instructions in the Table and the examples presented below.

| Column | ID | Gender | Gestational age | Biometric data |
|---------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Header | ID | Sex | GA | Weight Length Headcircumference |
| Content | Any alphanumerical identifier | Male / Female Other terms (e.g. boys / girls or M / F) will not work. | Integer number without decimals in days Range: 24+0 to 42+6 weeks' gestation, i.e. 168 to 300 days | Weight should be in kg with up to 3 decimal places Length and head circumference in cm with up to 1 decimal place |
| Comment | Not compulsory, the app will present results in the same order as they appear in the original file | Compulsory | Compulsory | Not compulsory for head circumference, the 2 words need to be <u>joined with no space</u> |

The column headings are not case-sensitive and their order is not fixed; other columns can also be present. What is important is that the headers appear as presented in the red box.

| | A | B | C | D | E |
|---|--------|-----|--------|--------|-------------------|
| 1 | Sex | GA | Weight | Length | HeadCircumference |
| 2 | Male | 168 | 0.64 | 31.79 | 22.34 |
| 3 | Female | 169 | 0.65 | 31.97 | 22.47 |
| 4 | Male | 170 | 0.66 | 32.15 | 22.59 |
| 5 | Female | 171 | 0.68 | 32.33 | 22.72 |
| 6 | Male | 172 | 0.69 | 32.51 | 22.85 |

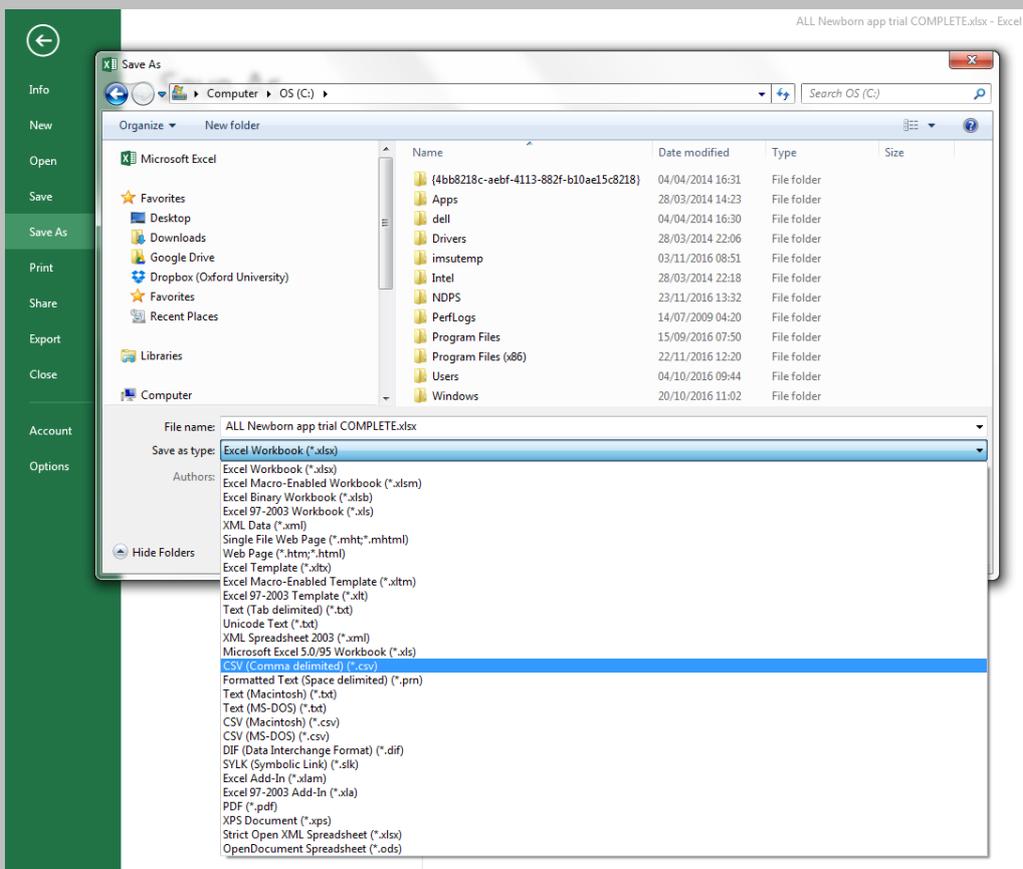
| | A | B | C | D | E | F | G | H |
|---|-----|-------|--------|--------|------------|-----------|--------|--------|
| 1 | GA | Apgar | weight | length | Place of b | headCircu | Sex | ID |
| 2 | 168 | 1 | 0.64 | 31.79 | Hospital | 22.34 | Male | 07-001 |
| 3 | 169 | 2 | 0.65 | 31.97 | Home | 22.47 | Female | 07-002 |
| 4 | 170 | 3 | 0.66 | 32.15 | Hospital | 22.59 | Male | 07-003 |
| 5 | 171 | 4 | 0.68 | 32.33 | Home | 22.72 | Female | 07-004 |
| 6 | 172 | 5 | 0.69 | 32.51 | Hospital | 22.85 | Male | 07-005 |

For the biometric data, decimals can be separated by either a comma or decimal point (e.g. “2,5” or “2.5”)

2. Save your file

The application supports both *.csv and *.txt format. Save your Excel file as *.csv

File → Save as → Choose the location of your file → Enter the file name → Choose the *.csv format from the dropdown menu → Press “Save”



Do not save your file directly from Excel to *.txt. If you do so, the resulting *.txt file will be tab delimited and the application only supports *.txt files using a comma or a decimal point

as separators. An error message will appear when you try to upload your file (see Troubleshooting section, 3)

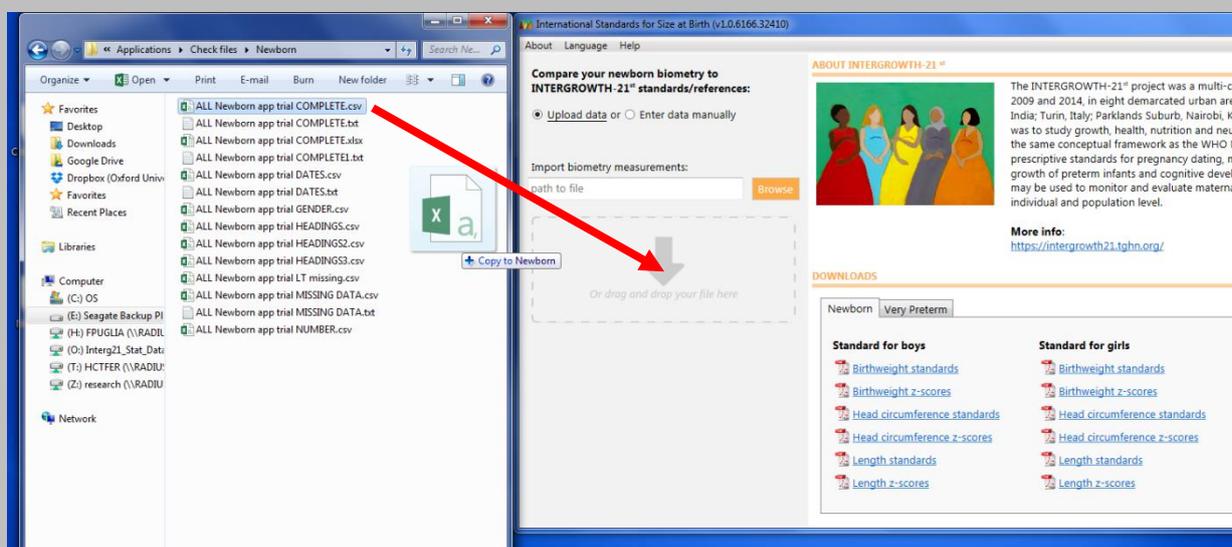
Once saved, close your dataset.

3. Open the application

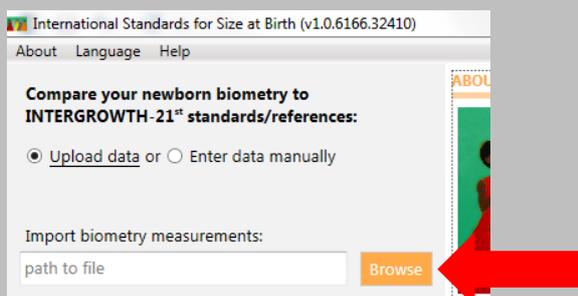
If not already open, see previous section on where to find and how to open the application on your computer.

4. Upload your file

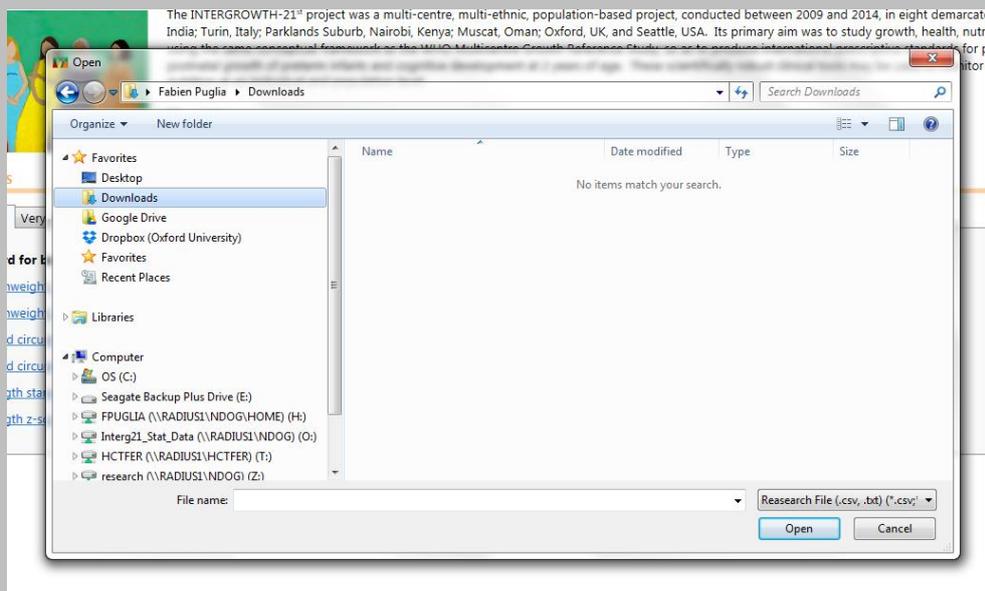
Either drag and drop your file to the dedicated zone as follows (Note that the “drag and drop” option only works for *.csv files)



Or use the “Browse” button on the application



Locate and select your file. Click 'Open'



At this point, the app will automatically calculate and display the results

International Standards for Size at Birth (v.1.0.6166.32410)

Compare your newborn biometry to INTERGROWTH-21st standards/references:

Upload data or Enter data manually

133 entries, 18 errors

| Child | | Length (cm) | | | Weight (kg) | | | Head circumference (cm) | | | |
|-------|--------|-------------|-------|---------|-------------|------|---------|-------------------------|-------|---------|---------|
| Id | Sex | Age (d) | cm | z-score | centile | kg | z-score | centile | cm | z-score | centile |
| 1 | Male | 168 | 21.79 | -0.1693 | 43.51 | 0.64 | 0.0204 | 50.81 | 22.24 | -0.0038 | 49.97 |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | Female | 171 | 32.33 | -0.0009 | 49.96 | N/A | N/A | N/A | 22.72 | 0.1600 | 56.36 |
| 5 | Male | 172 | N/A | N/A | N/A | 0.69 | 0.0118 | 50.47 | 22.85 | 0.0009 | 50.04 |
| 6 | Female | 173 | 32.70 | 0.0018 | 50.07 | 0.70 | 0.2836 | 61.16 | N/A | N/A | N/A |
| 7 | Male | 174 | 32.88 | -0.1628 | 43.53 | 0.72 | 0.0349 | 51.39 | 23.10 | -0.0014 | 49.95 |
| 8 | Female | 175 | 33.06 | 0.0007 | 50.03 | 0.73 | 0.3042 | 61.95 | 23.23 | 0.1618 | 56.43 |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10 | Female | 177 | 33.42 | -0.0004 | 49.98 | 0.76 | 0.3171 | 62.44 | 23.48 | 0.1595 | 56.34 |
| 11 | Male | 178 | 33.60 | -0.1650 | 43.45 | 0.77 | -0.0086 | 49.66 | 23.61 | 0.0004 | 50.02 |
| 12 | Female | 179 | 33.78 | -0.0015 | 49.94 | 0.79 | 0.3231 | 62.67 | 23.74 | 0.1636 | 56.50 |
| 13 | Male | 180 | 33.97 | -0.1622 | 43.56 | 0.80 | -0.0047 | 49.81 | 23.86 | -0.0019 | 49.92 |
| 14 | Female | 181 | 34.15 | 0.0012 | 50.05 | 0.82 | 0.3227 | 62.65 | 23.99 | 0.1613 | 56.41 |
| 15 | Male | 182 | 34.33 | -0.1633 | 43.51 | 0.83 | -0.0069 | 49.72 | 24.12 | 0.0022 | 50.09 |
| 16 | Female | 183 | 34.51 | 0.0001 | 50.01 | 0.85 | 0.3194 | 62.41 | 24.24 | 0.1589 | 56.31 |
| 17 | Male | 184 | 34.69 | -0.1644 | 43.47 | 0.86 | -0.0149 | 49.41 | 24.37 | -0.0001 | 50.00 |
| 18 | Female | 185 | 34.87 | -0.0010 | 49.96 | 0.88 | 0.3047 | 61.97 | 24.50 | 0.1630 | 56.48 |
| 19 | Male | 186 | 35.05 | -0.1655 | 43.43 | 0.89 | -0.0281 | 48.88 | 24.62 | -0.0024 | 49.90 |
| 20 | Female | 187 | 35.24 | 0.0018 | 50.07 | 0.91 | 0.2880 | 61.33 | 24.75 | 0.1607 | 56.38 |
| 21 | Male | 188 | 35.42 | -0.1628 | 43.53 | 0.93 | 0.0097 | 50.39 | 24.88 | 0.0017 | 50.07 |
| 22 | Female | 189 | 35.60 | 0.0007 | 50.03 | 0.95 | 0.3215 | 62.61 | 25.00 | 0.1584 | 56.29 |
| 23 | Male | 190 | 35.78 | -0.1639 | 43.49 | 0.96 | -0.0146 | 49.42 | 25.13 | -0.0007 | 49.97 |
| 24 | Female | 191 | 35.96 | -0.0004 | 49.98 | 0.98 | 0.2942 | 61.57 | 25.26 | 0.1625 | 56.45 |
| 25 | Male | 192 | 36.14 | -0.1650 | 43.45 | 1.00 | 0.0090 | 50.36 | 25.38 | -0.0030 | 49.88 |
| 26 | Female | 193 | 36.32 | -0.0015 | 49.94 | 1.02 | 0.3141 | 62.33 | 25.51 | 0.1602 | 56.36 |
| 27 | Male | 194 | 36.51 | -0.1623 | 43.56 | 1.03 | -0.0247 | 49.01 | 25.64 | 0.0011 | 50.04 |
| 28 | Female | 195 | 36.69 | 0.0012 | 50.05 | 1.05 | 0.2779 | 60.94 | 25.77 | 0.1643 | 56.52 |
| 29 | Male | 196 | 36.87 | -0.1634 | 43.51 | 1.07 | -0.0133 | 49.47 | 25.89 | -0.0012 | 49.95 |
| 30 | Female | 197 | 37.05 | 0.0001 | 50.00 | 1.09 | 0.2861 | 61.26 | 26.02 | 0.1620 | 56.43 |
| 31 | Male | 198 | 37.23 | -0.1645 | 43.47 | 1.11 | -0.0081 | 49.68 | 26.15 | 0.0029 | 50.12 |
| 32 | Female | 199 | 37.41 | -0.0010 | 49.96 | 1.13 | 0.2883 | 61.34 | 26.27 | 0.1597 | 56.34 |
| 33 | Male | 200 | 37.59 | -0.1656 | 43.43 | 1.15 | -0.0088 | 49.65 | 26.40 | 0.0006 | 50.02 |
| 34 | Female | 201 | 37.78 | 0.0018 | 50.07 | 1.17 | 0.2849 | 61.22 | 26.53 | 0.1638 | 56.50 |
| 35 | Male | 202 | 37.96 | -0.1628 | 43.53 | 1.19 | -0.0148 | 49.41 | 26.65 | -0.0017 | 49.93 |

5. Read the data

The app displays “N/A” (Not Applicable) in the result pane:

- For a whole line if either gender, GA or both are missing (lines 2 and 3)
- For a specific measurement, if no data were present in the file (lines 4, 5 and 6)

133 entries, 18 errors Export

| Child | Sex | Age (d) | Length (cm) | | | Weight (kg) | | | Head circumference (cm) | | |
|-------|--------|---------|-------------|---------|---------|-------------|---------|---------|-------------------------|---------|---------|
| | | | cm | z-score | centile | kg | z-score | centile | cm | z-score | centile |
| 1 | Male | 168 | 31.79 | -0.1633 | 43.51 | 0.64 | 0.0204 | 50.81 | 22.34 | -0.0008 | 49.97 |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | Female | 171 | 32.33 | -0.0009 | 49.96 | N/A | N/A | N/A | 22.72 | 0.1600 | 56.36 |
| 5 | Male | 172 | N/A | N/A | N/A | 0.69 | 0.0118 | 50.47 | 22.85 | 0.0009 | 50.04 |
| 6 | Female | 173 | 32.70 | 0.0018 | 50.07 | 0.70 | 0.2836 | 61.16 | N/A | N/A | N/A |
| 7 | Male | 174 | 32.88 | -0.1628 | 43.53 | 0.72 | 0.0349 | 51.39 | 23.10 | -0.0014 | 49.95 |
| 8 | Female | 175 | 33.06 | 0.0007 | 50.03 | 0.73 | 0.3042 | 61.95 | 23.23 | 0.1618 | 56.43 |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10 | Female | 177 | 33.42 | -0.0004 | 49.98 | 0.76 | 0.3171 | 62.44 | 23.48 | 0.1595 | 56.34 |

6. Export the data

Click the “Export” button on the top right corner of the result pane. Then select a location for your file, enter a name, and click Save. The exported file is a *.csv with new z-score and centile columns for each measure (birthweight, length and head circumference).

Results can also be directly copied and pasted from the application.

7. Compare a new batch of data

To upload a new *.csv or *.txt file for comparison with the standards, first remove the previous file by clicking on the trash bin icon. Then start again from step 3.

HOW TO

3. COMPARE THE SIZE OF A SINGLE NEWBORN TO THE STANDARDS

WHAT THE APP CAN DO FOR YOU

The application allows you to enter data (birthweight, length, and head circumference) manually for one newborn at a time (as an input), view the results in the application (both z-scores / centiles and graphically), and directly download a *.pdf file of the results.

HOW TO PROCEED

1. Select manual entry mode

When you are on the home screen, click on the radio button “Enter data manually”. This will toggle from Data batch upload to Manual entry.

2. Enter data manually

International Standards for Size at Birth (v1.0.6166.32410)
About Language Help

Compare your newborn biometry to
INTERGROWTH-21st standards/references:

Upload data or Enter data manually

Newborn Sex:

Weeks:

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| 42 | | | | | | | | |

Days:

| | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|

Length (cm):

Weight (kg):

Head circumference (cm):

1. Select “Newborn Sex”

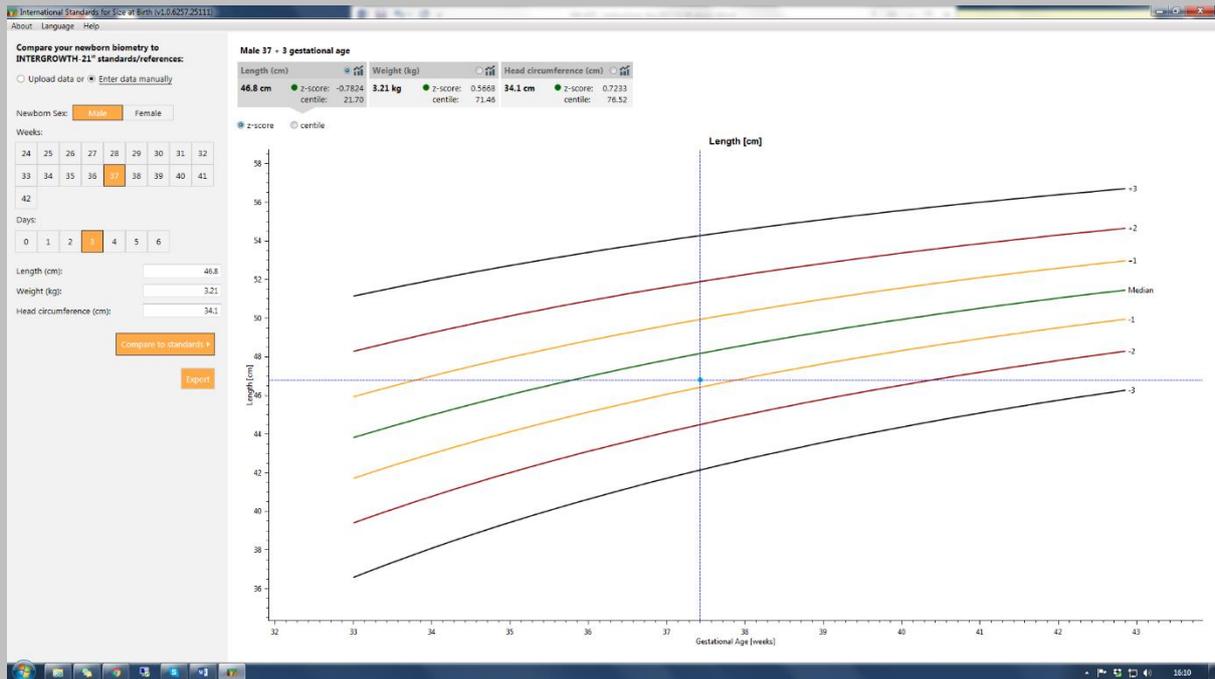
2. Select gestational age in weeks and days

3. Enter at least one of the 3 measurements

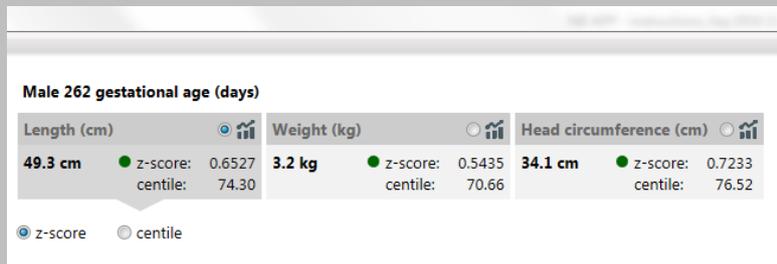
4. Click “Compare to standards”

5. Click “Export” to save a *.pdf document of your data

3. Look at the results and graph



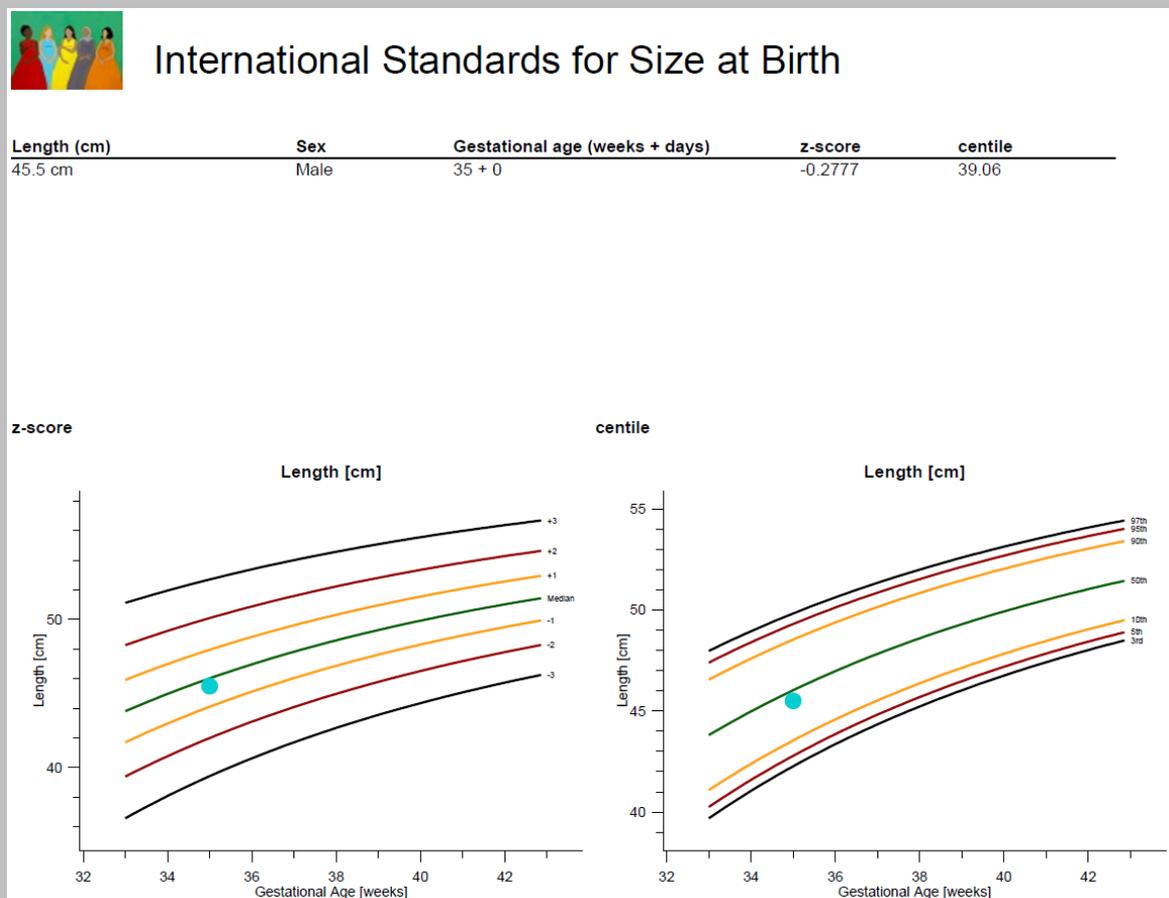
You can navigate between measurements by choosing their tabs and choose between z-score and centiles. You can also zoom in and out.



4. Export and print the data

Click on “Export” to download automatically a *.pdf file containing the results and graphs for each measurement.

Example of output – here “Length”:



HOW TO

4. TROUBLESHOOT

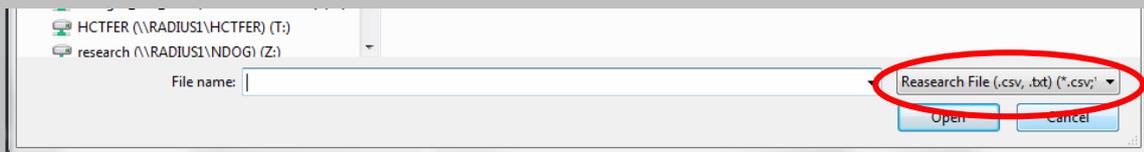
1. I cannot upload drag and drop my file. What should I do?

The application allows only *.csv files to be dragged and dropped directly. Files with a *.txt extension can only be uploaded through the “browse” function. First make sure that your data are in a *.csv or *.txt file.

Note that data in *.txt file should be separated by a comma or semicolon and not tab delimited.

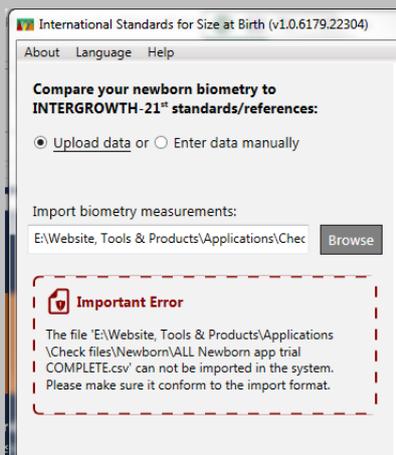
2. I cannot find my file. What should I do?

If when you try to upload a file using the “Browse” function, you cannot find your data file, make sure that it is saved in a supported format, i.e. *.csv or *.txt



3. My file is in the correct format but when I upload it, I see an error message.

If you are certain that your file is in the correct format but when you upload your file, the application still displays the following error message:



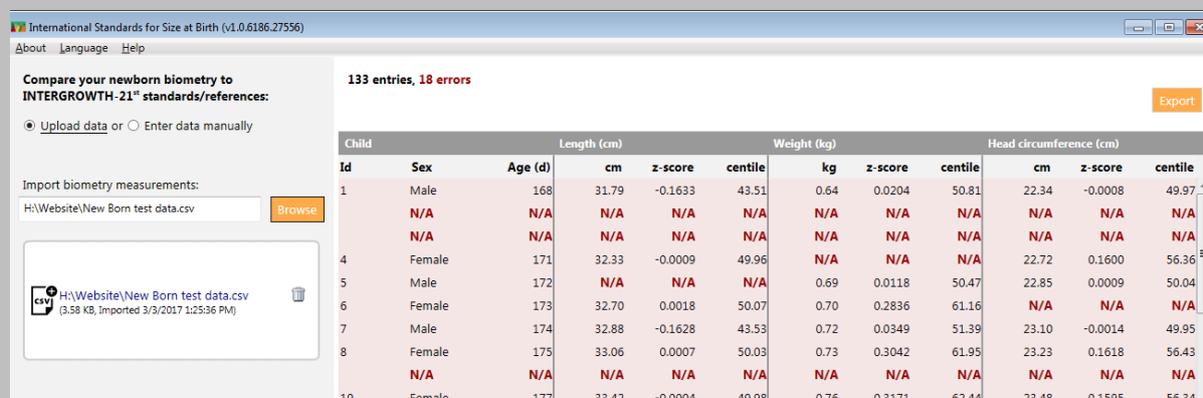
Make sure your file is closed before trying to upload it. If not, close it and try again.

4. When I upload my files, the results are “N/A”?

If N/A appears, it may mean:

1. A compulsory piece of information, like gender or gestational age, is either missing or has not been entered in the correct format. Please refer to the “Prepare your data” section.
2. The column has not been correctly labelled. Please refer to the “Prepare your data” section.
3. The measurement is missing from your file

Example of screen when compulsory information is missing (e.g. no data in the Sex or GA columns or the columns have been omitted) or the data are present but not in the correct format (e.g. there are decimals in the values for GA or you used “boys” and “girls” instead of “male” and “female” for sex):



International Standards for Size at Birth (v1.0.6186.27556)

Compare your newborn biometry to INTERGROWTH-21st standards/references:

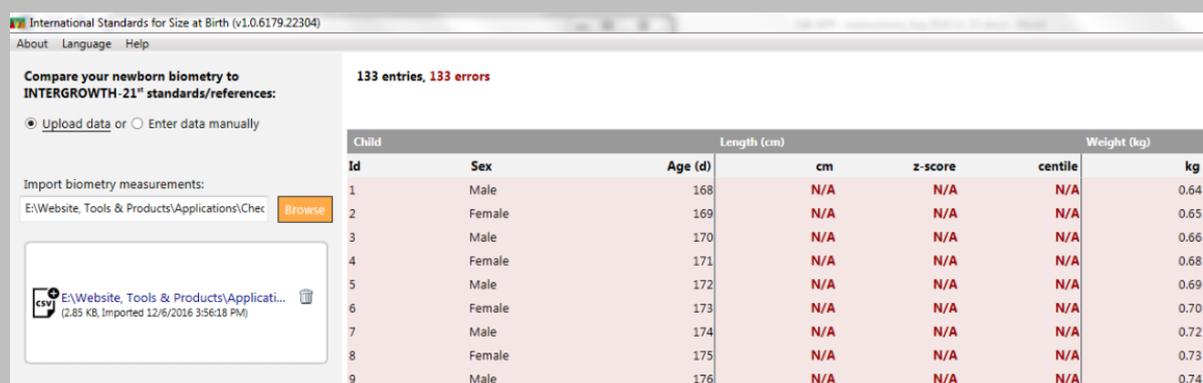
Upload data or Enter data manually

Import biometry measurements:
H:\Website\New Born test data.csv

133 entries, 18 errors

| Child | Sex | Age (d) | Length (cm) | | | Weight (kg) | | | Head circumference (cm) | | |
|-------|--------|---------|-------------|---------|---------|-------------|---------|---------|-------------------------|---------|---------|
| | | | cm | z-score | centile | kg | z-score | centile | cm | z-score | centile |
| 1 | Male | 168 | 31.79 | -0.1633 | 43.51 | 0.64 | 0.0204 | 50.81 | 22.34 | -0.0008 | 49.97 |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | Female | 171 | 32.33 | -0.0009 | 49.96 | N/A | N/A | N/A | 22.72 | 0.1600 | 56.36 |
| 5 | Male | 172 | N/A | N/A | N/A | 0.69 | 0.0118 | 50.47 | 22.85 | 0.0009 | 50.04 |
| 6 | Female | 173 | 32.70 | 0.0018 | 50.07 | 0.70 | 0.2836 | 61.16 | N/A | N/A | N/A |
| 7 | Male | 174 | 32.88 | -0.1628 | 43.53 | 0.72 | 0.0349 | 51.39 | 23.10 | -0.0014 | 49.95 |
| 8 | Female | 175 | 33.06 | 0.0007 | 50.03 | 0.73 | 0.3042 | 61.95 | 23.23 | 0.1618 | 56.43 |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10 | Female | 177 | 33.42 | -0.0004 | 49.98 | 0.76 | 0.3171 | 62.44 | 23.48 | 0.1595 | 56.34 |

Example of screen when either a measurement has been omitted (here, Length) or your column has been incorrectly labelled (e.g. “Lenght” instead of “Length”):



International Standards for Size at Birth (v1.0.6179.22304)

Compare your newborn biometry to INTERGROWTH-21st standards/references:

Upload data or Enter data manually

Import biometry measurements:
E:\Website_Tools & Products\Applications\Chec

133 entries, 133 errors

| Child | Sex | Age (d) | Length (cm) | | | Weight (kg) | | | | | |
|-------|--------|---------|-------------|---------|---------|-------------|---------|---------|-----|-----|------|
| | | | cm | z-score | centile | kg | z-score | centile | | | |
| 1 | Male | 168 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.64 |
| 2 | Female | 169 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.65 |
| 3 | Male | 170 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.66 |
| 4 | Female | 171 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.68 |
| 5 | Male | 172 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.69 |
| 6 | Female | 173 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.70 |
| 7 | Male | 174 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.72 |
| 8 | Female | 175 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.73 |
| 9 | Male | 176 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.74 |

5. I have tried everything and nothing seems to be working, what shall I do?

If you encounter further problems and cannot find a solution in this section, please contact us by email at intergrowth21st@tghn.org.

Please state the nature of your problem(s) in detail (send screen shots if necessary) and include a sample or all of your data.

We will check the data for you and give you feedback as soon as possible.