# International Fetal Growth Standards: Application



User guide

# Contents

- 1. How to install and open the application
- 2. How to compare the growth of many fetuses to the standards
- 3. How to compare the size of a single fetus to the standards
- 4. How to troubleshoot



April 2017

# HOW TO **1. INSTALL AND OPEN THE APPLICATION**

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

The International Fetal Growth Standards application can be downloaded from the following links on the INTERGROWTH-21<sup>st</sup> Project website on the Global Health Network: <u>https://intergrowth21.tghn.org/standards-tools/</u> or <u>http://bit.ly/IG21Tools</u>.

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

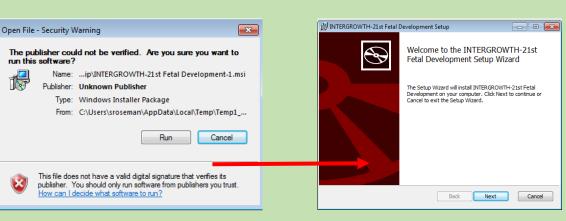
If you choose to download the application, it should by default be saved in the "Download" folder (unless you changed your preferences). Once downloaded, proceed to install the application.

#### **On Windows**

Double-click on "INTERGROWTH-21st Fetal Development-1.msi"



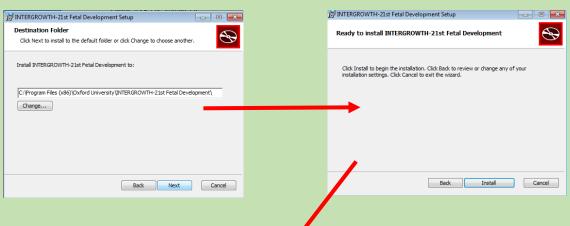




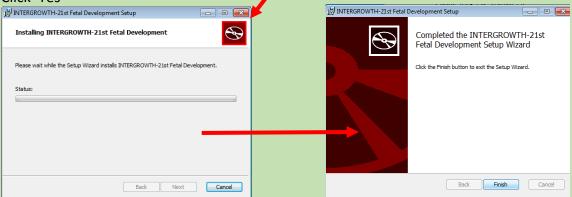
Click "Next"

#### Click "Next", again

#### Then click "Install"

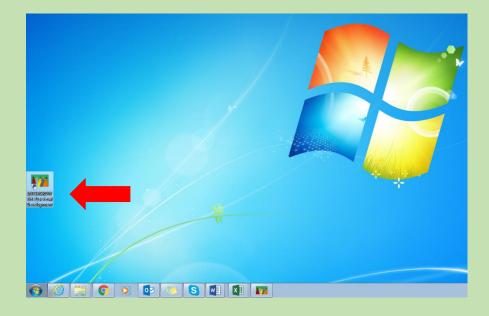


A screen will appear and your computer will ask permission to install the program. Click 'Yes' Once the installation is finished, click 'Finish'





An icon **FetalDevel** will appear on your desktop.



<u>Note:</u> other versions of Windows may differ slightly. **On an Apple Mac** 

Go to the "Download" folder, select and open the "Intergrowth (Fetal) 2017-02-17 11-41-00" file (the name of the file may change for more recent versions of the application). The computer will unzip the file. The following screen should appear.

•••	📄 Intergrowth (Fetal	) 2017-02-17 11-41-00	
	* • •	▲ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	ch
Favorites	Name	Date Modified	Siz
🗐 All My Files	Maintergrowth-osx	17 February 2017 11:46	67.8 M
iCloud Drive			
Stropbox (Oxford Unive			
(in) AirDrop			
Applications			
🛄 Desktop			
Documents			
O Downloads			
Devices			
💻 rachel's iMac			
Remote Disc			
_ USB DISK ≜			
Shared			

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-21<sup>st</sup> 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-21<sup>st</sup> Fetal Growth Standards application from the list.

Outlook 2013		🔋 GPower 🔺 📈	
BM SPSS Statistics 22		IBM SPSS Statistics	
😽 SAS 9.3 (English)	Fabien Puglia	🐺 Installers 🛛 🛛 Fabien Puglia	
EndNote	•	🗼 Intel	
Calculator	Computer	Maintenance Computer	
		Microsoft Office 2013	
14 WHO Anthro	Control Panel	J Microsoft Silverlight Control Panel	
各 Google Drive	Devices and Printers	Novell     Devices and Printers	
Excel 2013	Devices and Printers	Novell CASA	fan i r
Word 2013	Default Programs	Novell iPrint	
Skype	•	Oxford University	
Pare PowerPoint 2013	Help and Support	Help and Support	
NEWBORN		Skype	
FETAL		SoftwareWatcher bundle	
		Sophos	
PRETERM		3 Startup	
Notepad Notepad		WHO	
遵 Internet Explorer	• •	WinRAR 👻	
🔯 Windows Media Player			
All Programs		1 Back	
Search programs and files	P Shut down ►	Search programs and files	
	5 S M Z M		

#### **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**

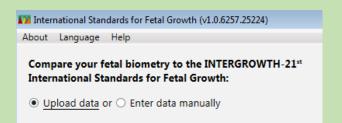
The application first opens on its home screen. The home screen is divided into 3 panes:

- On the upper right pane, there is a brief description of the INTERGROWTH-21<sup>st</sup>
   Project and a link to the Project's website
- On the lower right pane, you will find a tab labelled "Fetal size standards" which contain links to the tables of centiles and z-score values for head circumference, biparietal diameter, occipito-frontal diameter, abdominal circumference and femur length
- On the left pane, you will find options to enter data manually or upload the file

#### International Standards for Fetal Growth (v1.0.6257.25224) - - -About Language Help BOUT INTERGROWTH-21 Compare your fetal biometry to the INTERGROWTH-21st International Standards for Fetal Growth: The INTERGROWTH-21st project was a multi-centre, multi-ethnic, population-based project, conducted between 2009 and 2014, in eight demarcated urban areas: Pelotas, Brazil; Shunyi County, Beijing, China; Central Nagpur, India; Turin, Italy; Parklands Suburb, Nairobi, ● Upload data or ○ Enter data manually Kenya; Musca, Oman; Oxford, UK, and Settle, USA. Lits primary aim was to study growth, health, nutrition and neurodevelopment from <14weeks of gestation to 2 years of age, using the same conceptual framework as the WHO Multicentre Growth Reference Study, so Import biometry measurements: as to produce international prescriptive standards for pregnancy dating, maternal weight gain, fetal growth, newborn size, the postnatal growth of preterm infants and cognitive development at 2 years of age. These scientifically robust clinical tools may be used to path to file monitor and evaluate maternal and fetal wellbeing, as well as infant health and nutrition at an individual and population level. More info https://intergrowth21.tghn.org/ DOWNLOADS Fetal size standards 1 Head circumference standards Bead circumference z-scores 📆 Biparietal diameter standards 📆 Biparietal diameter z-scores 📆 Occipitofrontal diameter standards 📆 Occipitofrontal diameter z-scores Abdominal circumference standards Abdominal circumference z-scores % Femur length standards 📆 Femur length z-scores

#### 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

Mail Internation	al Standards for Feta	l Growth (v1.0.6257.25224)
About Lang	juage Help	
Comp Interr • Upresser	English Português Español	o the INTERGROWTH-21 <sup>st</sup> al Growth: manually

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

About       Language       Help         Organe your fetal biometry to the INTERGROWTH-21* International Standards for fetal Growth:       HOW INPORT FILE         Import biometry measurements:       Import biometry measurements:       The file must contain a HEADER row with the following columns, in English:         • Or drag and drag your file here       Frome       • Organizational Standards for fetal Growth:         • Or drag and drag your file here       Frome       • Organizational Standards for fetal Growth:         • Or drag and drag your file here       From Columns (mm)       • Experiate/Columns (mm)         • Or drag and drag your file here       • From Columns (mm)       • Experiate/Columns (mm)         • Or drag and drag your file here       • Heir annee: are case insensitive. As long as the columns have the correct headers, as shown above, their order is not important and other columns can also be present. Close the ".csv or ".txt file, before upload.         • The application supports both ";" and ";" as separator.       If you encounter any problems, please contact us on intergrowth21st@tghn.org	International Standards for Fetal Growth (v1.0.6257.25224)	
Compare your feld biometry to the INTERGROWTH-21*         International Standards for Fetal Growth:            • Upload data or O Enter data manually          Import biometry measurements:         path to file         Browse            • Or drag and drop your file here             • Or drag and drop your file here             • Note that the header names are case insensitive. As long as the columns have the correct headers, as shown above, their order is not important and other columns can also be present. Close the *.csv or *txt file, before upload.	About Language Help	
International Standards for Fetal Growth:       This application supports file in CSV (csv) or TXT (txt) format, when uploading data.         Import biometry measurements:       The file must contain a HEADER row with the following columns, in English:         Import biometry measurements:       Do contains subjects' identifiers. This column is optional. If not present the app shows results in the same order as entered in the file.         G G Gestational age in days. Only full days (not decimals) are allowed. The values must be between 98 days and 286 days (i.e. 14+0 weeks to 40+6 weeks).         HeadCircumference (mm)         OccipitofrontalDiameter (mm)         OccipitofrontalDiameter (mm)         Note that the header names are case insensitive. As long as the columns have the correct headers, as shown above, their order is not important and other columns can also be present. Close the *.csv or *.txt file, before upload.         The application supports both ";" and "," as separator.	Compare your fetal biometry to the INTERGROWTH-21st	HOW TO IMPORT FILE
Import biometry measurements:       Path to file         path to file       Browse         Or drog and drop your file here       Browse         Note that the header names are case insensitive. As long as the columns have the correct headers, as shown above, their order is not imports both ";" and "," as separator.		This application supports file in CSV (.csv) or TXT (.txt) format, when uploading data.
Import biometry measurements:       path to file       Browse         gath to file       Browse         Or drag and drop your file here       HeadCircumference (mm)         Or drag and drop your file here       AbdominalCircumference (mm)         Note that the header names are case insensitive. As long as the columns have the correct headers, as shown above, their order is not important and other columns can also be present. Close the ".csv or ".txt file, before upload.         The application supports both ";" and "," as separator.	● <u>Upload data</u> or ○ Enter data manually	The file must contain a HEADER row with the following columns, in English:
	path to file Browse	<ul> <li>the file.</li> <li>GA Gestational age in days. Only full days (not decimals) are allowed. The values must be between 98 days and 286 days (i.e. 14+0 weeks to 40+6 weeks).</li> <li>HeadCircumference (mm)</li> <li>BiparietalDiameter (mm)</li> <li>OccipitofrontalDiameter (mm)</li> <li>AbdominalCircumference (mm)</li> <li>FemurLength (mm)</li> <li>Note that the header names are case insensitive. As long as the columns have the correct headers, as shown above, their order is not important and other columns can also be present. Close the *.csv or *.txt file, before upload.</li> <li>The application supports both *;" and "," as separator.</li> </ul>

The application is ready to use!

# HOW TO 2. COMPARE THE GROWTH OF MANY FETUSES 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 fetuses (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 examples presented below.

Column	ID	Gestational age	Biometric data
Header	ID	GA	<ul> <li>Headcircumference</li> <li>Biparietaldiameter</li> <li>Occipitofrontaldiameter</li> <li>Abdominalcircumference</li> <li>Femurlength</li> </ul>
Content	Any alphanumerical identifier	Integer number without decimals in days Range: 14+0 to 40+0 weeks' gestation, i.e. <b>98</b> <b>to 280 days</b>	All measurements should be in mm, 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	Not compulsory

The column headings are <u>not case-sensitive</u> 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.

X∎		5-	_ (°) - ∓						Feta	l app trial f	file MISSI	NG DATA.csv [Re	ead-
FI	ILE	НО	ME IN	SERT PA	GE LAYOUT	FORM	JLAS DATA	REVIEW	VIEW	Nuance	PDF		
6	<b>₩</b> ₩ 0	Cut			44	<b>^</b>	. =	x0.	÷				
	C 🝙 o	onv		Calibri	- 11	• A 4		≫~ ≣	Wrap Text		General	*	
Pas	ste		at Painter	в <i>I</i> <u>U</u>		<u>A</u> - 📢	• = = =	€≣ 75 🗄	Merge & C	Center 👻	S - 9	% * €.0 .00 .00 →.0	C
	-				Fant		_	A li e re re a		_			Fc
	Clipb	oard	- Ia		Font		Fail	Alignmer	11	Fa .	IN IN	lumber 🗔	
A1			- = 2	Κ 🗸 .	ƒx GA								
	Α		I	В	С		D			Е		F	
1	GA	_	HeadCircu	Imference	BiparietalDia	ameter	Occipitofront	alDiameter	Abdomina	lCircumf	erence	FemurLength	
2		98		87.38		26.13		31.28			88.87	15.96	
3				99.22		28.92		35.62			101.51	19.28	
4	-	12				31.8		39.98			114.04		
5		19		123.04				44.32			126.45	25.66	
6		26		134.94		37.75					138.75	28.73	
7		33		146.77		40.78		52.91				31.72	
8		40		158.49		43.85		57.14			162.98		
9	1	47		170.06		46.92		61.28			174.92	37.47	
10 11	1	61		192.59		53.05		69.31			198.49	42.92	-
11	-	68		203.48		56.08		73.16			210.12		
12	1	00		203.40		50.08		75.10			210.12	40.00	
X∄	E 5	) <del>.</del>	∂- ∓									Fetal app 1	trial f
		HOME	-	PAGE LA	OUT FORML	ILAS D	ATA REVIEW	VIEW PO	OWERPIVOT			retai app i	
	<mark>ι.</mark> Χ Cu	ıt	Ca	alibri	- 11 - A A	• = =	- */- =	Wrap Text	General		•		Nor
Pa	ste Ste			I <u>U</u> -	- <u>&gt;</u> - <u>A</u>	- = =	≡ ∉ ₽ ≣	Merge & Cente	r + 😨 + 9	6 ° .00		ditional Format as ditional Format as	Che
	Clipboa		Fai	For	nt	Gi i	Alignmen	t	ra N	umber	G.	intering induce -	
E3	2	Ŧ	: 🗙	$\sqrt{f_x}$									
	А	В	С		D		E	F		G		Н	
1	ID	GA	Placenta p	osition Bipar	ietalDiameter	Abdomin	alCircumference	FemurLengt	h Occipitofro	ntalDiame	ter Head	dCircumference	

1	ID	GA	Placenta position	BiparietalDiameter	AbdominalCircumference	FemurLength	OccipitofrontalDiameter	HeadCircumference	
2	07-001	98	Posterior high	87.38	88.87	15.96	31.28	26.13	
3	name1	105	Anterior low	99.22	101.51	19.28	35.62	28.92	
4	07-002	112	Posterior low	111.12	114.04	22.51	39.98	31.8	
5	name2	119	Posterior low	123.04	126.45	25.66	44.32	34.75	
6	07-003	126	Posterior low	134.94	138.75	28.73	48.64	37.75	
7	name3	133	Anterior high	146.77	150.92	31.72	52.91	40.78	
8	07-004	140	Posterior high	158.49	162.98	34.63	57.14	43.85	
9	name4	147	Posterior high	170.06	174.92	37.47	61.28	46.92	
10	07-005	154	Posterior low	181.44	186.76	40.23	65.35	49.99	
11	name5	161	Anterior low	192.59	198.49	42.92	69.31	53.05	
12	07-006	168	Posterior high	203.48	210.12	45.53	73.16	56.08	

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  $\rightarrow$  Save as  $\rightarrow$  Choose the location of your file  $\rightarrow$  Enter the file name  $\rightarrow$  Choose the \*.csv format from the dropdown menu  $\rightarrow$  Press "Save"

$\bigcirc$	X Save As		Catal and this file MAICCINH	C DATA (002) [[	lead Oaks) Fusal		<b>X</b>
E		Documents			<b>- - - + - + - + - + - + - + - + - + - + - + - + + + + + + + + + +</b>	Search Documents	<u>م</u> م
Info	Organize 🔻 New folde	er				8==	• 🔞
New	Microsoft Excel	Documents library				Arrange by: Fol	der 🔻
Open	☆ Favorites	Name	Date modified	Туре	Size		
Save	E Desktop Downloads	Custom Office Templates	19/12/2015 09:31	File folder			
Save As	🔚 Recent Places	🎍 EndNote 퉬 Fax	03/12/2015 17:00 17/12/2015 13:11	File folder File folder			
Print		PDF Favorites Scanned Documents	01/02/2017 13:25 17/12/2015 13:11	File folder File folder			
Share	Libraries	Julia Scanned Documents	17/12/2013 13:11	i lie tolder			
Export	Music Pictures						
Close	File name:						•
		Comma delimited) (*.csv)					•
Account	Authors: Excel	Workbook (*.xlsx) Macro-Enabled Workbook (*.xlsm)					- 1
Options	Hide Folders Excel 1 XML L Single Web P Excel 1 Excel 1 Excel 1 Excel 1 Control KML S	Sinary Workbook (*.xlsb) 77-2003 Workbook (*.xls) Jata (*.xml) .File Web Page (*.nht,*.mhtml) Jage (*.htm,*.html) Template (*.xlt) Macro-Enabled Template (*.xltm) J7-2003 Template (*.xlt) Tab delimited) (*.txl) de Text (*.txl) Soft Excl 5.0/05 Workbook (*.xls) Soft Excl 5.0/05 Workbook (*.xls) J8-005) (*.csv) 4d-din (*.xls) J7-2003 Add-In (*.xls) J0-pen XML Spreadsheet (*.xlsx) Document (*.xps) Document (*.xps)					

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 a tab-delimited \*.txt file (see Troubleshooting section, 3).

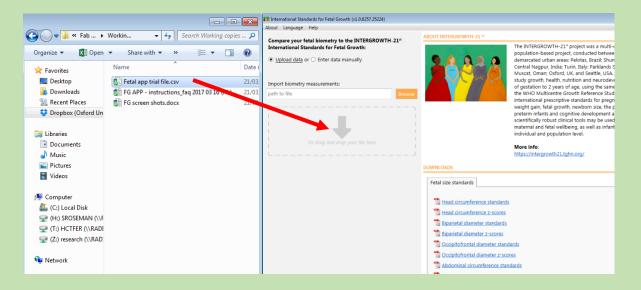
Once saved, close your dataset.

# 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

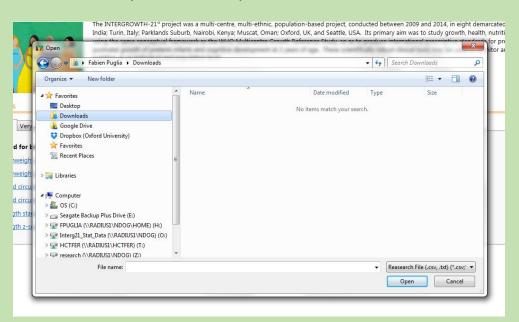
Either drag and drop your file to the dedicated zone as follows (Note that the "drag and drop" option only works for \*.csv files)



#### 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

bout Language Help																	
Compare your fetal biometry to the INTERGROWTH-21 <sup>a</sup> International Standards for Fetal Growth:	27 entries, 17	errors															Expor
Upload data or O Enter data manually																	_
	Child		ad circumferen			oarietal diamet			ccipitofrontal di			odominal circun		_	mur length (mn		
mport biometry measurements:	Id	Age (d)	mm	z-score	centile	mm	z-score	centile	mm	z-score	centile	mm	z-score	centile	mm	z-score	cen
(Users)sroseman/Dropbox (Daford University)/Fab and Sop	1	98	87.38	-1.8806	3.00	26.13	-1.9985	2.28	31.28	-1.2817	10.00	88.87	1.9991	97.72	15.96	1.8793	9
		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	
	3	112	N/A	N/A	N/A	31.80	-2.0025	2.26	39.98	-1.2778	10.07	114.04	1.9998	97.72	22.51	1.8797	9
	4	119	123.04	-1.8808	3.00	N/A	N/A	N/A	44.32	-1.2792	10.04	126.45	1.9994	97.72	25.66	1.8803	5
C\Users\sroseman\Dropbox (Oxford University)\Fa	5	126	134.94	-1.8804	3.00	37.75	-1.9992	2.28	N/A	N/A	N/A	138.75	2.0003	97.73	28.73	1.8811	\$
(1.01 KB, Imported 3/22/2017 10:23:04 AM)	6	133	146.77	-1.8803	3.00	40.78	-2.0027	2.26	52.91	-1.2814	10.00	N/A	N/A	N/A	31.72	1.8812	3
	7	140	158.49 170.06	-1.8803	3.00	43.85	-1.9996	2.28	57.14	-1.2782	10.06	162.98	1.9999	97.72 97.72	N/A 37.47	N/A	
	8	147 N/A		-1.8804	3.00 N/A	46.92	-2.0019 N/A	2.26 N/A	61.28	-1.2816 N/A	10.00 N/A		1.9995	N/A		1.8818	
		161	N/A 192.59	N/A -1.8805	3.00	N/A 53.05	-2.0023	2.26	N/A 69.31	-1.2803	10.02	N/A	N/A 2.0005	97.73	N/A 42.92	N/A 1.8824	1
	10	161	203.48	-1.8805	3.00	55.05	-2.0023	2.26	73.16	-1.2803	10.02	198.49 210.12	2.0005	97.73	42.92	1.8824	
	11	108	203.48	-1.8797	3.01	59.06	-2.0014	2.26	75.16	-1.2797	10.03	210.12	1.9996	97.75	45.53	1.8802	
	12	1/5	214.05	-1.8805	3.00	61.98	-2.0025	2.26	80.45	-1.2793	10.04	233.13	1.9996	97.72	48.07	1.8791	
	13	182	224.28	-1.8805	3.00	64.83	-2.0037	2.26	83.87	-1.2809	10.01	233.13	2.0001	97.73	52.94	1.8788	8
	15	109	234.13	-1.8805	3.00	67.59	-2.0031	2.26	87.12	-1.2809	10.01	255.89	1.9996	97.72	52.94	1.8788	23
	15	203	243.50	-1.8809	3.00	70.24	-2.0023	2.26	90.19	-1.2797	10.01	255.69	1.9996	97.72	57.53	1.8782	
	10	203	252.52	-1.8809	3.00	72.76	-2.0024	2.26	93.06	-1.2797	10.03	207.21	1.9998	97.72	57.53	1.8782	
	18	210	268.92	-1.8807	3.00	75.15	-2.0045	2.25	95.72	-1.2796	10.03	278.51 289.81	2.0003	97.73	61.85	1.8812	
	19	224	276.28	-1.8805	3.00	75.15	-2.0028	2.25	95.72	-1.2794	10.04	301.12	2.0003	97.73	63.91	1.8785	
	20	231	276.28	-1.8807	3.00	79.42	-2.0045	2.25	100.35	-1.2805	10.02	312.46	2.0004	97.73	65.91	1.8785	
	20	231	289.11	-1.8805	3.00	81.27	-2.0038	2.26	102.30	-1.2798	10.02	323.86	2.0001	97.73	67.84	1.8800	
	22	245	294.50	-1.8809	3.00	82.90	-2.0037	2.25	102.50	-1.2802	10.03	335.33	2.0003	97.73	69.71	1.8804	
	23	243	299.16	-1.8808	3.00	84.29	-2.0047	2.24	105.38	-1.2805	10.02	346.90	2.0000	97.73	71.52	1.8812	
	24	259	303.05	-1.8804	3.00	85.43	-2.0055	2.25	105.50	-1.2794	10.02	358.59	1.9999	97.72	73.26	1.8782	
	25	266	306.12	-1.8803	3.00	86.28	-2.0033	2.23	107.28	-1.2794	10.04	370.43	2.0001	97.73	74.96	1.8815	
	25	273	308.33	-1.8805	3.00	86.83	-2.0070	2.24	107.28	-1.2791	10.04	382.44	2.0001	97.73	76.59	1.8798	8
	20	2/3	308.55	-1.8809	3.00	87.05	-2.0072	2.24	107.84	-1.2791	10.04	394.64	2.0002	97.73	78.17	1.8798	
	21	200	309.04	-1-0609	5.00	07.03	2.00/1	2.24	107.04	-1-2/9/	10/03	334.04	2.0001	51.15	/0.1/	1.0/92	

#### 5. Read the data

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

- For a whole line if GA is missing (line 2)
- For a specific measurement, if no data were present in the file (lines 3-7)

27 entries,	17 errors															Export
Child		Head circumfere			<b>Biparietal diamet</b>	ter (mm)		Occipitofrontal d	liameter (mm)		Abdominal circur	nference (mm)		Femur length (mr		
Id	Age (d)	mm	z-score	centile	mm	z-score	centile	mm	z-score	centile	mm	z-score	centile	mm	z-score	centile
1	98	87.38	-1.8806	3.00	26.13	-1.9985	2.28	31.28	-1.2817	10.00	88.87	1.9991	97.72	15.96	1.8793	96.99
	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
3	112	N/A	N/A	N/A	31.80	-2.0025	2.26	39.98	-1.2778	10.07	114.04	1.9998	97.72	22.51	1.8797	96.99
4	119	123.04	-1.8808	3.00	N/A	N/A	N/A	44.32	-1.2792	10.04	126.45	1.9994	97.72	25.66	1.8803	97.00
5	126	134.94	-1.8804	3.00	37.75	-1.9992	2.28	N/A	N/A	N/A	138.75	2.0003	97.73	28.73	1.8811	97.00
6	133	146.77	-1.8803	3.00	40.78	-2.0027	2.26	52.91	-1.2814	10.00	N/A	N/A	N/A	31.72	1.8812	97.00
7	140	158.49	-1.8803	3.00	43.85	-1.9996	2.28	57.14	-1.2782	10.06	162.98	1.9999	97.72	N/A	N/A	N/A
8	147	170.06	-1.8804	3.00	46.92	-2.0019	2.26	61.28	-1.2816	10.00	174.92	1.9995	97.72	37.47	1.8818	97.01

#### 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 (head circumference, bi-parietal diameter, occipito-frontal diameter, abdominal circumference and femur length).

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 FETUS TO THE STANDARDS*

#### WHAT THE APP CAN DO FOR YOU

The application allows you to enter biometric data (head circumference, bi-parietal diameter, occipito-frontal diameter, abdominal circumference and femur length) manually for one fetus at one or several time points, 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

#### **On Windows**

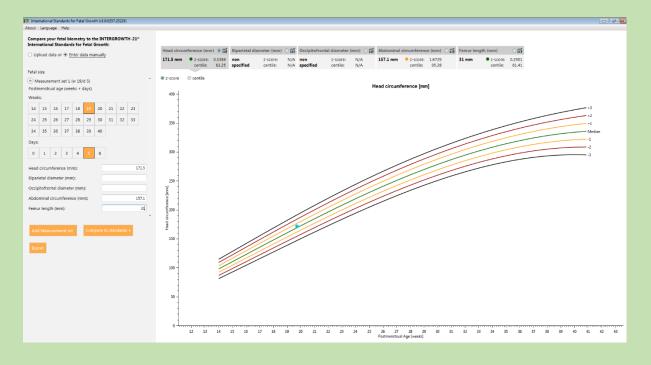
💴 Intern	ationa	I Stand	lards fo	or Fetal	l Growt	th (v1	.0.6257.	25224)				
About	Langu	Jage	Help									
Comp Intern O Upl	ation	al Sta	ndard	ls for	Fetal	Grov		ROWT	H-21°	t		
				inter u		anua	<u>iiy</u>					
Fetal s	ize											
<u>м</u> е										1	^	
Postm	enstr	ual ag	e (wee	eks + (	days)							
Week	5:											
14	15	16	17	18	19	20	21	22	23			1. Select "Weeks"
24	25	26	27	28	29	30	31	32	33			
34	35	36	37	38	39	40						
Days:												2. Select "Days"
0	1	2	3	4	5	6						
Head Bipari												3. Enter <u>at least</u> one of the 5 measurements
Occipi	itofro	ntal di	amete	er (mm	ı):					_		
Abdor												3.1 Click "Add Measurement set" to add dataset
Femu	r leng	th (mr	n):									at other time point
					_							
Add	Meas	surem	ent se	t	Com	npare	to sta	ndards	Þ			4. Click "Compare to standards"
Ехро	ort											5. Click "Export" to save a *.pdf document of your data

# On an Apple Mac

The left pane first appears blank. Select "Add Measurement set".

• • •	•••
About Language Help	About Language Help
Compare your fetal biometry to the INTERGROWTH-21st International Standards for Fetal Growth:	Compare your fetal biometry to the INTERGROWTH-21st International Standards for Fetal Growth:
OUpload data	O Upload data
<ul> <li>Enter data manually</li> </ul>	<ul> <li>Enter data manually</li> </ul>
Fetal size	Fetal size
	Data 1       Weeks:     Days:       14     0       Head circumference (mm)     Biparietal diameter (mm)       0     0       Occipitofrontal diameter (mm)     Abdominal circumference (mm)       0     0       Femur length (mm)     0       0     0
Add Measurement set Compare to standards	Add Measurement set Compare to standards
Export	Export

## 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.

						~ <b>*</b>									~ <b>•4</b>
Head cir	cumferenc	(mr	n) 🔍 籠	Biparietal dia	meter (mm)	o îi	Occipitofronta	l diameter (	mm) 🗆 🏭	Abdominal	circumferenc	:e (mm) 🔾 🏭	Femur len	gth (mm)	៍
171.5 m			0.3384 63.25	non specified	z-score: centile:		non specified	z-score: centile:	N/A N/A	157.1 mm	z-score: centile:		31 mm	<ul> <li>z-score: centile:</li> </ul>	
z-score	cent	le													

#### 4. Enter data for more than one time point

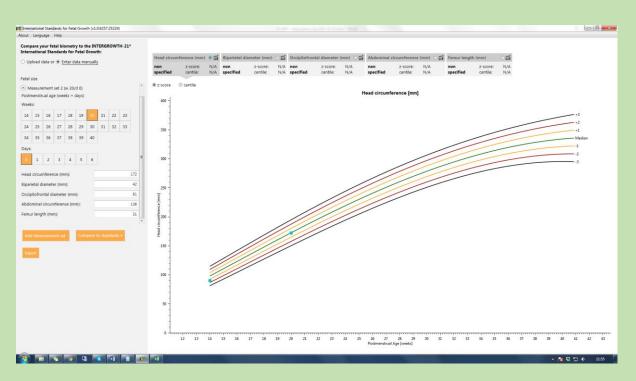
You can enter measurements for more than 1 time point.

To proceed, simply click on the "Add Measurement set" button. Space for a second set of measurements will appear.

national Standards for Fetal Growth (v1.0.6257.25224)				
Language Help				
pare your fetal biometry to the INTERGROWTH-21 <sup>st</sup> national Standards for Fetal Growth:				
oad data or <ul> <li>Enter data manually</li> </ul>				
ize				
rement set 1 (w 14/d 0)				
strual age (weeks + days)				
15 16 17 18 19 20 21 22 23				
25 26 27 28 29 30 31 32 33				
36 37 38 39 40				
2 3 4 5 6				
circumference (mm):				
liameter (mm):				
ntal diameter (mm):				
inal circumference (mm):				
r length (mm):				
-				
d Measurement set				
port				

Proceed as previously, enter the gestational age and one or several of the biometric data and click "Compare to standards".

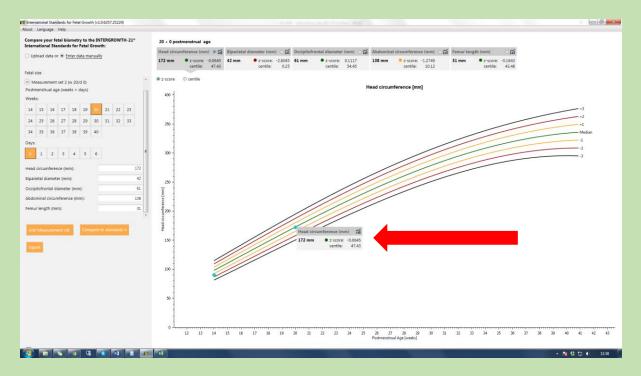
Repeat as many times as you have time points.



The upper tabs will not display the results until you click one of the points on the graph below

Head circumference (mm) 💿 🎬			Biparietal dia	meter (mm)	៍	Occipitofront	al diameter (	mm) 🗆 📬	Abdominal o	ircumference	(mm) 🔿 🎁	Femur lengt	្រះ	
non specified	z-score: centile:	N/A N/A	non specified	z-score: centile:		non specified	z-score: centile:	N/A N/A	non specified	z-score: centile:	N/A N/A	non specified	z-score: centile:	N/A N/A
z-score	© centile													

Then, an inset will appear on the graph showing the results and the upper tab will display all the results.



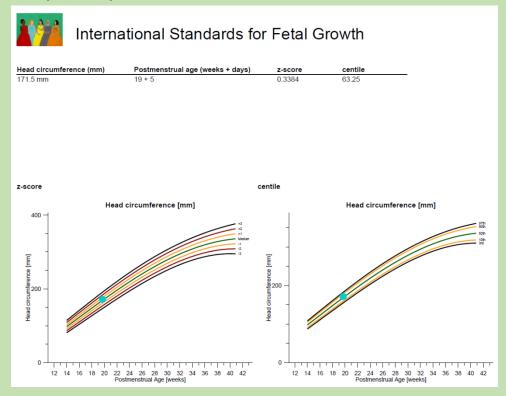
20 + 0 pos	20 + 0 postmenstrual age												
Head circumference (mm) 💿 😭 Bip			Biparietal diameter (	Biparietal diameter (mm) 🔿 🎬			Occipitofrontal diameter (mm) 🔿 🎬			ce (mm) 🔿 🎁	Femur lengt	្រះរ	
172 mm	<ul> <li>z-score: -0.0 centile: 4</li> </ul>		42 mm • z-sco centi	re: -2.8045 e: 0.25		<ul> <li>z-score: centile:</li> </ul>		138 mm	z-score: centile:		31 mm	<ul> <li>z-score: centile:</li> </ul>	-0.1643 43.48
z-score	centile												

# 5. Export and print the data

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

Interr	ationa	d Stand	lards fo	or Fetal	Growt	h (v1 0	.6257.2	5224)					
	International Standards for Fetal Growth (v1.0.6257.25224) About Language Help												
Com	Compare your fetal biometry to the INTERGROWTH-21**												
	International Standards for Fetal Growth:												
O Up	○ Upload data or ④ Enter data manually												
Fetal s	size												
Measurement set 1 (w 14/d 0)													
Postmenstrual age (weeks + days)													
Week	is:												
14	14         15         16         17         18         19         20         21         22         23												
24	25	26	27	28	29	30	31	32	33				
34	34 35 36 37 38 39 40												
Days:													
0	1	2	3	4	5	6							
Head	circur	nferen	ce (m	m):									
	ietal d												
	oitofro				<b>D</b> .								
	minal												
	r leng			ce (iiii									
remu	ir ieng	un (mr	n):										
-					_								
Add					Com				•				
				_	_	_	_	_					
Exp	Export												

# Example of output – here "Head circumference":



# HOW TO **4. TROUBLESHOOT**

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

The application allows only \*.csv files to de 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.

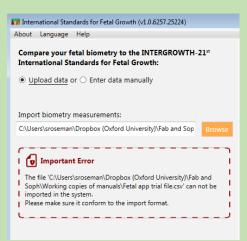
## 2. I cannot find my file. What should I do?

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

HCTFER (\\RADIUS1\HCTFER) (T:)  research (\\RADIUS1\NDOG) (Z:)	
File name:	Reasearch File (.csv, .bxt) (*.csv;' 🗸
	Open cancel

# 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. 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 GA (i.e. compulsory) information is missing or the data are present but not in the correct format (e.g. there are decimals in the values for GA, lines 2 and 10)
- When biometric data are missing (lines 3-7)

bout Language Help																	
Compare your fetal biometry to the INTERGROWTH-21 <sup>st</sup> International Standards for Fetal Growth:	27 entries, 12 errors Export.																
Upload data or O Enter data manually	Child		Head circumference (mm)			Biparietal diameter (mm)			Occipitofrontal diameter (mm)		Abdominal circumference (mm)		iference (mm)	Femur length (mm)			
	Id	Age (d)	mm	z-score	centile	mm	z-score	centile	mm	z-score	centile	mm	z-score	centile	mm	z-score	centi
mport biometry measurements:	1	98	87.38	-1.8806	3.00	26.13	-1.9985	2.28	31.28	-1.2817	10.00	88.87	1.9991	97.72	15.96	1.8793	96.
C/Users/sroseman/Dropbox (Oxford University)/Fab and Sop Browse		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,
	3	112	N/A	N/A	N/A	31.80	-2.0025	2.26	39.98	-1.2778	10.07	114.04	1.9998	97.72	22.51	1.8797	96
	4	119	123.04	-1.8808	3.00	N/A	N/A	N/A	44.32	-1.2792	10.04	126.45	1.9994	97.72	25.66	1.8803	97
	5	126	134.94	-1.8804	3.00	37.75	-1.9992	2.28	N/A	N/A	N/A	138.75	2.0003	97.73	28.73	1.8811	97
C:\Users\sroseman\Dropbox (Oxford University)\Fa	6	133	146.77	-1.8803	3.00	40.78	-2.0027	2.26	52.91	-1.2814	10.00	N/A	N/A	N/A	31.72	1.8812	97
	7	140	158.49	-1.8803	3.00	43.85	-1.9996	2.28	57.14	-1.2782	10.06	162.98	1.9999	97.72	N/A	N/A	N
	8	147	170.06	-1.8804	3.00	46.92	-2.0019	2.26	61.28	-1.2816	10.00	174.92	1.9995	97.72	37,47	1.8818	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
	10	161	192.59	-1.8806	3.00	53.05	-2.0023	2.26	69.31	-1.2803	10.02	198.49	2.0005	97.73	42.92	1.8824	97
	11	168	203.48	-1.8797	3.01	56.08	-2.0014	2.27	73.16	-1.2797	10.03	210.12	2.0002	97.73	45.53	1.8802	97
	12	175	214.05	-1.8805	3.00	59.06	-2,0025	2.26	76.88	-1.2793	10.04	221.66	1.9996	97.72	48.07	1.8791	96

Example of screen when either a measurement has been omitted (here, head circumference) or your column has been incorrectly labelled (e.g. "HC" instead of "Headcircumference")

Mainternational Standards for Fetal Growth (v1.0.6257.25224)												
About Language Help												
Compare your fetal biometry to the INTERGROWTH-21 <sup>st</sup> International Standards for Fetal Growth:	27 entries, 27 errors											
Upload data or												
	Child		Head circumferer	nce (mm)		Biparietal d						
	Id	Age (d)	mm	z-score	centile	m						
Import biometry measurements:	07-001	98	N/A	N/A	N/A	87.						
E:\Website, Tools & Products\Applications & calculators\Blue Browse	name1	105	N/A	N/A	N/A	99.						
	07-002	112	N/A	N/A	N/A	111.						
	name2	119	N/A	N/A	N/A	123.						
	07-003	126	N/A	N/A	N/A	134.						
E:\Website, Tools & Products\Applications & calcul (1.24 KB, Imported 3/23/2017 11:42:56 AM)	name3	133	N/A	N/A	N/A	146.						
	07-004	140	N/A	N/A	N/A	158.						
	name4	147	N/A	N/A	N/A	170.						
	07-005	154	N/A	N/A	N/A	181.						
	name5	161	N/A	N/A	N/A	192.						
	07-006	168	N/A	N/A	N/A	203.						
	name6	175	N/A	N/A	N/A	214.						

## 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.