

eMeasures 2.0/eMeasures 2X: FAQ and Cost

What is the eMeasures system?

The “eMeasures Classic” system is a web-based psychiatric research instrument, hosted by the Center for Developmental Epidemiology (CDE) at the Duke University School of Medicine in Durham, North Carolina (USA). Researchers all over the world connect to the server using web-deployed thin-client software on their Windows tablet computers. Interviewers input interview data online or offline and then upload it to the Duke servers whenever an Internet connection is available. CDE staff compiles the datasets and run diagnostic algorithms on the data. We then make the results available to the researchers.

Our new “eMeasures 2X” web app now features a cross-platform, responsive HTML5 interface for the CDE’s psychiatric research instruments. That means researchers using the CDE instruments now can choose from a wide variety of popular computing platforms: desktops and laptops running current versions of Microsoft Windows or Apple Mac OS, as well as mobile platforms running current versions of iOS and Android and with a minimum screen diameter of 10 inches (25.4 cm). We recommend a 12 inch (30.5 cm) or larger display for best usability. The web app has been thoroughly tested on Internet Explorer 11, Edge41, Safari 11, Chrome 64 and Firefox 58. It is important to note that the eMeasures 2X app is only accessible with an active Internet connection. Off-line mode is still available in the eMeasures 2 Classic app.

This Software-as-a-Service (SaaS) model has the advantage that software integration and maintenance are simple and automated for the researchers who use our system. They do not have to set up or maintain any data entry systems or worry about storage. The entire core infrastructure is maintained by the staff of the CDE. We worry about security and regulatory compliance (according to U.S. requirements). This means infrastructure cost is spread over many studies, which allows us to scale your cost to the needs of your study.

The back-end systems for eMeasures are hosted on state-of-the-art hardware and software at the newest datacenter on the campus of Duke University. The systems and databases are updated and backed up regularly. The eMeasures system complies with Duke computer security policies as well as United States and North Carolina data security regulations.

Hardware and Software Requirements for using eMeasures Classic

To conduct interviews on eMeasures Classic, interviewers need a Windows Tablet PC that supports stylus input. We recommend at least a 12-inch screen and enough processing power and memory that would allow you to watch a YouTube video full screen on the device.

eMeasures Classic has been tested on Windows 7 and Windows 10, and you'll need Internet Explorer 7 or later for the on-click deployment of the client. Chrome, Edge, and Firefox are not

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supported. That process will install Microsoft's .Net Framework if it's not yet installed. Of course the device has to be networked (WLAN is fine) and it has to support SSL encryption for secure connections to the eMeasures server. Interviews can be completed online (clinic) or offline (subject's home).

Hardware and Software Requirements for using eMeasures 2X

Users can use up-to-date web browsers that support html5 for Windows, Apple MacOS, mobile iOS, and Android devices. The new eMeasures 2X does not require stylus enabled Windows tablets. This can substantially lower computer costs. The eMeasures 2X system requires a reliable internet connection at all times.

Key Differences between eMeasures Classic and eMeasures 2X

	eMeasures 2 Classic	eMeasures 2X
Offline mode:	YES	NO
Hardware:	Stylus Enabled Windows Tablet	Windows (Desktop/Laptop/Tablet) Apple Devices (MacBook/iPad)
Browser:	Internet Explorer 7 or higher	IE, Edge, Safari, Chrome, Firefox
Platforms:	Windows Only	Windows, Mac OS, iOS, Android
Responses to Probes:	Handwritten Notes	Typed Notes
Instruments Available	PAPA, CAPA, and YAPA	PAPA, CAPA, and YAPA

The eMeasures system is currently comprised of two tools: the eMeasures interview and the eMeasures coding tool. A third tool, the eMeasures report, is not yet developed.

Available eMeasures Interview Schedules:

Preschool Age Psychiatric Assessment (PAPA): Parent only interview schedule originally developed for use with preschoolers 2 to 5 years old. However, we provide full assurance that it is appropriate to use the PAPA with 8 year old children for the diagnosis of the full range of common psychiatric disorders.

Child and Adolescent Psychiatric Assessment (CAPA): Parent and Child interview schedule designed for use with children 9 to 17 years old. The CAPA is used for the diagnosis of the full range of common psychiatric disorders.

Young Adult Psychiatric Assessment (YAPA): Child interview schedule is designed for use with young adults 18 years or older. There is no "parent interview" schedule for the YAPA. The YAPA is used for the diagnosis of the full range of common psychiatric disorders.

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As with the paper versions of the CDE measures, the eMeasures instruments are coded by the interviewer after the interview has been completed. Coding validation algorithms are embedded in the coding tool. This eliminates most “coding” errors by interviewers. Coding validation identifies coding errors and provides a short explanation of the error to the interviewer: for example, “The onset date precedes the date of birth.” Coding validation in conjunction with “gateways” seamlessly guides the interviewer through the interviews thus reducing administration time as opposed to paper versions. Of course, administration time will depend on the amount of psychopathology reported by the interviewee. Coding time is also reduced by as much as half when compared to coding paper interviews.

When interviews have been coded, checked, and approved, the Duke technical and analytic staff will convert the eMeasures data into a SAS database and then run interview data through the DSM-IV/DC: 0-3R/RDC-PA diagnostic algorithms developed by Dr. Egger. **This will not be done for “individual” interviews, but rather at predetermined intervals.** (We are in process of updating PAPA algorithms with DSM 5 criteria. We have completed DSM 5 algorithms for the CAPA and YAPA.) We will generate 2 datasets per year (usually at 6 month intervals). This will produce a dataset with both the raw variables and the diagnostic variables including specific psychiatric symptoms, scale scores, diagnoses, impairment from psychiatric symptoms, life events (if life event modules were used in your study), other risk factors, and demographic information endorsed by the parent about his/her child. This SAS dataset can be converted into a SPSS or STATA dataset using DBMS copy.

If a research group wants to administer the paper version of the PAPA, the eMeasures system can be used (using any PC or OS device, not necessarily a tablet PC) as the data entry system. However, the stylus function will not be available for non-tablet PC.

When funding can be obtained, we will develop an eMeasures report tool. The report function will work as follows: When the eMeasures has been coded and checked back into the eMeasures server, the interview will be automatically analyzed with DSM-IV/DC: 0-3R/RDC-PA or DSM 5 diagnostic algorithms. A report will be generated detailing the psychiatric symptoms, scale scores, and diagnoses, impairment from psychiatric symptoms, life events (if life event modules are used in your study), other risk factors, and demographic information endorsed by the parent about his/her child. This will be very useful for (1) clinical settings (2) studies using consensus clinical diagnostic processes and (3) selecting subjects for studies or nested cohorts within an on-going study.

Administration of CDE measures (PAPA, CAPA, and YAPA) requires a four (4) day training session. Brian Small (brian.small@dm.duke.edu) will provide training either at Duke University

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or with our trainer at your site. Additional costs associated with using paper schedules, the eMeasures system, and training costs, are outlined below.

The PAPA has been translated into French Canadian, German, Korean, Norwegian, Romanian, and Spanish. Researchers interested in developing a translation of the PAPA should contact Dr. Egger or Brian Small.

The PAPA was originally developed for preschoolers aged 2 to 5 years old. However, we provide full assurance that it is appropriate to use the Preschool Age Psychiatric Assessment (PAPA) with 8 year old children for the diagnosis of the full range of common psychiatric disorders. We (and others) have used the PAPA with 8 year old children. We recommend the following interviewing strategy.

1. Interview parents using the PAPA for children up to 8 years old.
2. For children ages 9 and older, interview the parent and child with the Child and Adolescent Psychiatric Assessment (CAPA).

All CDE interview schedules can be modularized to fit the specific needs of your study or clinic, provided deleted modules are not necessary for diagnosis.

[Click Here for YouTube Demo of eMeasures 2 Classic](#)

I am interested in using eMeasures. What information will you need to decide if this is the right tool for me?

1. Is this for a clinical or research use?
2. How many subjects do you want to interview?
3. How long will you study last?
4. What is the age range of the children?
5. Will you have an internet connection when interviewing the subject?
6. How many interviewers do you plan to train?

What is the cost of training for eMeasures and what does it include?

Interview training takes four (4) didactic days. We send our trainer, Brian Small, to train on site. The measures, like all structured interviews, are fairly intensive with a fairly steep learning curve but the outcome being rich data. There are also core measures that have been developed that include diagnostic criteria available.

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eMeasures Training Costs

Interview training with Brian Small:

1. \$500 per day, including travel days.
2. Airfare (business class if possible for a very long trip) and accommodations during visit (plus the cost of food and transportation).
3. **Optional Service:** Brian will thoroughly check an interview and provide a written feedback report for \$250 per checked interview. Depending on the size of your group, it is beneficial to receive this feedback on 1-2 interviews per interviewer.

eMeasures Licensing Costs

The yearly license fee is based on the number of projected interviews to be collected per year.

Licensing covers:

1. Access to agreed number of interviews as well as unlimited number of practice interviews
2. Management and maintenance of eMeasures server
3. Data storage
4. Dataset deliverables of every six (6) months which includes taking the raw data, running algorithms, and delivery of a SAS dataset along with all the raw/diagnostic/risk factor variables.
5. Delivery of a dataset faster than every six (6) months incurs an additional charge of \$2,000.
6. Customer Service: Brian Small is available for instrument administration questions, coding questions, and/or trouble shooting.

eMeasures Development Costs

All eMeasures interview schedules (PAPA, CAPA, and YAPA) are immediately available for use. You may use the “complete” version of the interview, or you may elect to select certain modules that fit your study needs, provided deleted modules are not necessary for diagnosis. Upon your request modifications to the interview schedule can be completed at programming cost of \$40 per hour.

eMeasures Translation Costs

The measures can be translated into any language where we retain the copyright but the translators are credited on the authorship page of the translated versions. The PAPA is copyrighted by Duke’s Center for Developmental Epidemiology. Translation of the PAPA, CAPA, or YAPA incurs programming costs to fit the needs of your study. Translation programming costs are \$40 per hour.

Advantages of the eMeasures System over Paper Assessments

Electronic assessments have many advantages over the paper assessments. Electronic assessments are far more efficient than the paper. Below are just a few of the advantages of the eMeasures system for data collection.

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1. Electronic assessments are environmentally friendlier. The paperless format means fewer trees are cut down.
2. You don't have to carry around a big book which is often 500 or more pages!
3. Long-term storage of paper instruments costs money. This is an often overlooked, hidden cost of paper assessments. Institutional Review Boards (IRB) requires you to keep data after your study ends. Duke University's IRB requirements state that research records are to be kept "for six years after the study is completed or until the child reaches the age of 21, whichever is longer." Storing our paper assessments costs more than \$10,000 a year. There is the additional hidden cost for the destruction or shredding of paper assessments 6 years after the study has concluded.
4. There are no printing costs associated with using the eMeasures system.
5. There is no need to create a separate data entry system for the eMeasures system is the data entry system. You will not have to hire data entry personnel to "double enter" the data. Data entry is completed as the interviewer codes the interview.
6. Because skip instructions are built into the electronic assessment, the interviewer is easily guided through the assessment. This can reduce administration time, but interviewing time is determined by many factors.
7. Coding electronically is MUCH faster than coding paper. Coding time is about half the time it takes to code a paper version of the PAPA, CAPA, or YAPA.
8. Validation for coding is completed at the interview level.
9. Where as it used to take years to enter data from paper assessments (depending on how many interviews were completed), data is uploaded as soon as the interview is coded and saved to our server.
10. We have already developed diagnostic algorithms. Data analysis is completed using our DSM-IV/DC: 0-3R/RDC-PA diagnostic algorithms. DSM 5 algorithms are available for CAPA and YAPA. DSM 5 algorithms are still being developed for the PAPA. Datasets are available to you at 6 month intervals throughout your study. You can, however, request more frequent analysis for a fee.

Licensing Costs per Database per Year

Estimated Number of Interviews per Year	Cost of License per Year	eMeasures: Cost per PAPA, CAPA* or YAPA	Paper: Cost Estimated at \$125 per Interview**
1-50	\$5,000	\$100	\$6250
51-100	\$6,000	\$60	\$12,500
101-200	\$8,000	\$40	\$25,000
201-300	\$9,000	\$30	\$37,500
301-400	\$10,000	\$25	\$50,000
401-500	\$11,000	\$22	\$62,500
501-750	\$12,000	\$16	\$93,750
751-1000	\$13,000	\$13	\$125,000

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*If using CAPA to interview parent and child, you will need 2 separate databases: 1) Parent CAPA Database; 2) Child CAPA Database. There is a license fee for each parent and child CAPA database.

** Paper interview cost is estimated at \$125 per paper interview. This includes the cost of paper, printing, interviewing, database development, data entry personnel, double entry, analysis, and long term storage.