

expressions[®]

Where Research and Creativity Meet

Teacher Guide

2018-2019

Contents

Introduction	2
Before You Start	3
eXperience eXpressions®	4
Student Project Examples	7
Curriculum Connections	13
Contacts	14

Introduction

Office of Government and Community Relations' Civic Education Department

The Cleveland Clinic Office of Government and Community Relations' Civic Education Department works to improve health and wellness, promote academic achievement, and foster career preparedness for students in grades K through 12. Our Clinic-Based, School-Based, and Connected Learning programs provide a wide range of authentic learning experiences at Cleveland Clinic facilities, in schools, and through technology-mediated activities. Aligned with academic content standards and centered around real-world applications, these programs leverage organizational resources and community partnerships to support student success, both inside and beyond the classroom, empowering our community's next generation of leaders.

eXpressions®

eXpressions® is an award-winning educational initiative that utilizes creative expression to engage high school (and even middle school) students in the exploration of science and medicine. Through project-based, peer-to-peer learning, students translate research studies conducted by Cleveland Clinic high school interns, producing artistic, literary, and mathematical interpretations of the science.

Launched in 2005, the eXpressions® program began by inviting young artists to listen to and to interpret research conducted by Cleveland Clinic science interns from their schools. The result was a stunning array of artwork in diverse media. In 2007, the addition of myRESEARCH™, a collection of online research presentations, expanded the reach of eXpressions® to schools without science interns. Also in 2007, the Civic Education Department expanded the program by developing a language track. In 2009, the program expanded to include a math track.

The foundation of eXpressions® is the research conducted by Cleveland Clinic high school summer interns. Unlike typical teenage summer jobs, the internships involve participation on a professional level and engage participants in hands-on activities at all levels of the healthcare industry. Interns finish their work with a top quality report, including a visual poster display and digital presentation. They then move on to share their experiences with their peers at their home schools and beyond.

This sharing stimulates responses and invites students to perceive and express connections among science, art, literature, and math. By involving your students in eXpressions®, you will engage in an exciting classroom experience that reveals a profound capacity for creativity, self-expression, and academic excellence.

Before You Start

Who should participate?

eXpressions® focuses on linking art, language, and math to science by fostering imagination and innovation in students. Thanks to modern technology, any student in grades 7-12 from across Northeast Ohio or around the world can participate in the program. High school classes, organizations, or clubs that emphasize art, language, or mathematics would be a good choice.

Here are some examples of how the program can be utilized by teachers:

- Whole class project
- Individual project
- Interdisciplinary unit
- Elective alternate class
- Extra credit or make-up credit (illnesses, long absences)
- Gifted programs
- Entire grade levels
- After-school programs
- Special education programs
- After-school clubs
- Home-schooling consortia
- Other groups – be creative, the opportunities are endless!

How can I integrate eXpressions® into my teaching?

Essentially, it is up to you on how you would like your students to experience the eXpressions® program. You will want to begin by deciding on how you will integrate the program into your teaching by determining the following:

- Will you require all of your students to participate as a graded assignment?
- Will you make this an optional opportunity?
- Will you make this an extra-credit opportunity?
- Will you make this an independent study?

eXperience eXpressions®

The following steps suggest one way of experiencing the eXpressions® program with your students. You are invited to adapt the steps and to use your own creative genius to make the program your own!

We also have Teacher Mentors available to assist you. This allows you to check with an experienced veteran and have all of your questions answered. They will provide Virtual Office Hours or On-site Visits to accommodate your needs.

Virtual Office Hours: **September 20, 2018 and October 30, 2018 from 3:30-4:30 p.m.**

To connect to the Mentors during the Virtual Office Hours, please go to www.clevelandclinic.org/eXpressions then click on the Program Resources tab for details.

On-Site Visits: Please email one of the Teacher Mentors to schedule a visit.

Their contact information is provided on page 14 of this guide, and on the Program Resources tab for the eXpressions® website.

Step One: Teacher Registration

- Log on to the Cleveland Clinic Civic Education Department's eXpressions® website: www.ClevelandClinic.org/eXpressions.
- Read the eXpressions® program description.
- Watch the eXpressions® program video.
- Read the eXpressions® program [FAQ's](#) to find answers to the program's most frequently asked questions.
- Complete the online [Teacher Registration Form](#) to register to participate in the 2018-2019 eXpressions® program.
- The deadline to register is **5:00 p.m., Wednesday, October 10, 2018**.

Step Two: Help Students Select Research Projects

- Visit the eXpressions® [Program Resources website page](#) and click on the link "2018 Cleveland Clinic Science Internship Program Projects List" to identify if any student(s) from your school participated in the 2018 Science Internship Program.
- Visit the myRESEARCH™ website page: www.ClevelandClinic.org/myRESEARCH. myRESEARCH™ houses all of the research projects of the 2018 science interns. Browse through the research projects to become familiar with this year's topics.
- Share the myRESEARCH™ website page link with your students.
- Provide your students with enough time to browse through the 2018 science interns' research projects featured on the myRESEARCH™ website page.

- Students can DESELECT the checkmarks in the 2012, 2013, 2014, 2015, and 2016 boxes under “Internship Year(s)” on the left side of the page to be able to view research projects only from 2018. **Only research projects conducted in 2018 should be used for the 2018-2019 eXpressions® program.**
- Students can narrow in on research projects of interest by utilizing the search fields “Researcher,” “Mentor,” “School,” and “Research Topic” on the left side of the page.
- Facilitate a discussion to identify research projects that caught your students’ attention or sparked a personal connection.
- Determine the research projects your students would like to creatively interpret.

Step Three: Help Students Understand Their Research Projects

- Locate a science intern, or interns, who conducted the research of the projects your students selected to creatively interpret. Ask the intern(s) to present their project(s) to your classroom. Your students also have the option to view the research projects online.
 - At your school: If you have one or more science interns at your school, you are in an optimal situation. The interns are usually eager to share their research projects with their peers.
 - From a nearby school or district: If no one in your school or district participated in this year’s Science Internship Program, perhaps an intern from another nearby school can arrange for a field trip to explain his/her project to your students.
 - Online: If your situation does not provide access to a 2018 science intern, modern technology comes to the rescue. Digital presentations are available online 24/7 through the [myRESEARCH™ website page](#).
- Provide your students with enough time to visit several informational websites to better understand the research projects they selected.
- Provide your students with enough time to reflect on how they personally connect to the research projects they selected.
- Provide your students with enough time to brainstorm with their peers about the research projects they selected.

Step Four: Help Students Creatively Interpret Their Research Projects

- Establish a due date for when you would like your students to have their creative interpretations completed.
- Initiate the creative process with your students by asking them to sketch, prewrite, or make mathematical connections about the research projects they selected.
- Ask your students to start thinking about the direction they would like to take with their creative interpretations and the form of the submission they will be entering.
 - Art : genre, medium, dimensions, etc.

- Language: genre, voice, style, etc.
- Math: mathematical connections, style, etc.
- Have your students establish individual progress deadlines for their creative interpretations.
- Ask students to periodically question and critique their creative interpretations.
 - How effectively does their interpretation communicate one or more of the key issues surrounding their selected research project?
 - What level of technical proficiency is being demonstrated?
 - How innovative is their creative interpretation?
 - How much effort is evident?
- Initiate opportunities for your students to share their creative interpretations with their peers to receive feedback on their works-in-progress.

Step Five: Help Students Submit Their Creative Interpretations

- Visit the [Student Submission Process website page](#).
- Read through the eXpressions® [Submission Guidelines and Instructions](#) and [Online Submission Checklist](#).
- Share with your students the link to the Student Submission Process website page.
- Have your students read through the Submission Guidelines and Instructions and Online Submission Checklist.
 - Print off in advance the Submission Guidelines and Instructions and Online Submission Checklist so each of your students has a hard copy available to refer to throughout the submission process.
- Have your students complete the [Online Submission Form](#).
 - Remind your students the Online Submission Form is designed to allow for saving and returning to a partially completed form.
 - Remind your students they must complete all of the requested information on the Online Submission Form for their work to be evaluated. Forms with missing information will not be reviewed.
 - Remind your students all submissions must include an eXpressionist statement that is under 100 words, proofread, and spell-checked. This statement sheds light on the inspiration, concept, and hopes for their work. Art submissions will also require a technique statement in addition to the eXpressionist statement.
- The deadline to have your students complete the Online Submission Form is **11:59 p.m., Thursday, November 8, 2018**.

Step Six: Help Students Celebrate Their Achievement

- Celebrate your students' creativity!
- Celebrate your students' self-expression!
- Celebrate your students' excellence!
- Celebrate your students' achievement by displaying projects at your school!

Student Project Examples

Below you will find three research projects conducted in the summer of 2016, along with an award-winning Art, Language, or Math interpretation of each research project that was produced as part of the 2016-2017 eXpressions® program.

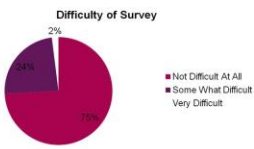
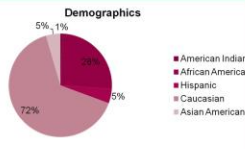
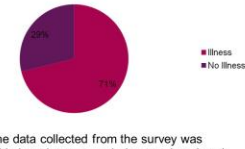
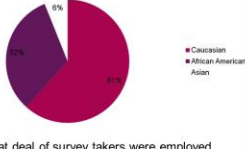
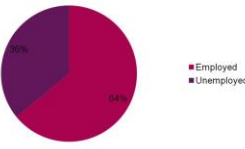
Example 1: (Art Interpretation of Research)

Depression and Anxiety in Different Ethnic and Racial Groups



Andrew Genao; Krithika Sundaram; Charles S. Modlin, MD, MBA, FACS; Lillian Prince, MS, MSEd
Cleveland Clinic

**Civic Education
Applied Medicine
Internship Program**

Hypothesis and Background	Data	Results	Conclusions
<ul style="list-style-type: none"> Minorities will experience higher levels of depression and anxiety African Americans make up 25% of the total surveys taken Caucasian survey takers made up 65% of the total survey takers Anxiety and depression can be linked to other chronic illnesses Depression and Anxiety are defined by the social and psychological burdens placed on a person or a group of people Depression and anxiety can be linked to a person's financial, marital, and social status <p>Methodology</p> <ul style="list-style-type: none"> A twenty-one question survey was designed to collect data on a person's employment, marital, and education level The survey was considered by a large majority of survey takers as, "not difficult at all" A small percentage of survey takers skipped this question on the survey <p>Difficulty of Survey</p> 	<p>Demographics</p>  <ul style="list-style-type: none"> The demographics of the survey had a large percentage of Caucasian survey takers than Minority Survey takers We handed out the survey to people who were visiting the Cleveland Clinic and were willing to take the survey The survey collected data on a person's employment, marital, and education level <p>Reported Percentage Of Chronic Illnesses</p>  <ul style="list-style-type: none"> The data collected from the survey was added put into an excel sheet and analyzed Those suffering from a chronic illness did not show a direct correlation between the illness and there level of anxiety or depression The data showed that more Caucasian survey takers suffered from higher levels of stress and anxiety than African American survey takers. 	<p>Results</p> <ul style="list-style-type: none"> The results of the survey showed that Caucasian survey takers suffered from depression and anxiety more than there minority counterparts The minority survey takers suffered from anxiety and depression at a less percentage than Caucasian people <p>High Risk Of Developing Anxiety or Depression</p>  <ul style="list-style-type: none"> A great deal of survey takers were employed compared to the small percentage that was either unemployed or retired Of the 47 people that were at a high risk of developing depression or anxiety a high percentage were employed either inside or outside the home The results showed an increased risk of developing anxiety and depression in employed Caucasians <p>Employment status</p> 	<p>Conclusions</p> <ul style="list-style-type: none"> The Results of my survey showed that 32% of the participants of the 47 that rated as being as being at high risk of developing depression or anxiety were African American 61% of the 47 people that ranked as being at high risk of developing anxiety or depression were Caucasians The data collected showed that there was an increase risk of depression and anxiety in Caucasian people Of the one hundred and eleven surveys collected only 47 people showed to be at a high risk of developing anxiety and depression People that are at higher risks of developing anxiety or depression are often burned out from work and worn out by other things going on in there personal lives <p>Recommendations</p> <ul style="list-style-type: none"> Physician and Family members need to be made aware of the symptoms of anxiety and depression and how to help those suffering from it. Those suffering or are at risk of becoming anxious or depressed should feel as though they should be able to seek help. People need to be informed of the effects of depression and anxiety so that they do not believe the stigma that is usually associated with anxiety or depression Help should be made easily accessible to people that suffer from depression or anxiety More surveys should be passed out to gather more data Surveys should be more in depth in order to gather more data

INTERN: Andrew Genao, Bedford High School

TRACK: Applied Medicine

MENTORS: Charles Modlin, MD, MBA, FACS; Jamal Gambrell

DEPARTMENT: Minority Men's Health Center, Department of Urology; Glickman Urological & Kidney Institute

RESEARCH: Depression and Anxiety in Different Ethnic and Racial Groups

HYPOTHESIS: Depression and anxiety are defined by the social and psychological burdens placed on a person or a group of people. The two conditions can be linked to a person's financial, marital, or social status, as well as to other chronic illnesses. Our hypothesis was that minorities experience higher levels of depression and anxiety.

METHODOLOGY: A 21-question survey was designed to collect data about a person's employment, marital status, and education level. Of the total number of survey respondents, 65% were Caucasian and 25% were African-American. The data collected from the survey were entered into an Excel spreadsheet and analyzed.

OUTCOMES: Of the 111 surveys collected, only 47 people were identified as being at a high risk of developing anxiety and depression. The results of the survey revealed that 32% of the 47 participants rated as high risk for developing depression or anxiety were African-American, while 61% were Caucasian. The data collected showed that there was an increased risk of depression and anxiety in Caucasians. People who are at a higher risk of developing anxiety or depression are often burned out from work and worn out by other factors in their personal lives.



AWARD	Best in Show, Art
EXPRESSIONIST	Sarah Drury
SCHOOL	Firelands High School
CITY	Oberlin, Ohio
TEACHER	Laura Tawil
INTERN	Andrew Genao
RESEARCH	Depression and Anxiety in Different Ethnic and Racial Groups
TITLE	<i>HELP</i>
MEDIUM/GENRE	Mixed-Media

STATEMENT


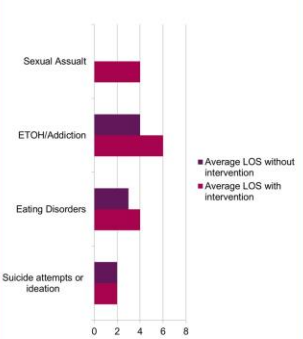
My representation of the study consists of 99 photographs: 61 of Caucasians, 32 of African Americans, and 6 of Asians. This is because these precise numbers come from the data in the study, which is in percentage form. All photos that represent depression are black and white. This is because when someone is depressed, his or her world becomes faded and dull. The photos that represent anxiety are in color. This is because a person experiencing anxiety has enhanced senses, so their worlds are more vibrant. When viewed from a specific angle, the photos spell out “HELP” since the top recommendation for patients is to seek help

Example 2: (Language Interpretation of Research)

An Inquiry Into the Relationship Between Spiritual Care Interventions and Length of Stay in Select Hospital Patients

Lauryn Hamilton; Rabbi Susan Stone
Cleveland Clinic

Civic Education
Nursing Care
Internship Program

Background & Hypothesis	Data	Results	Conclusions
<ul style="list-style-type: none"> Spiritual care is a form of complimentary medicine Spirituality can be defined as the connection/relationship people have with their environment, heritage, sacred holy, and other people. When these relationships experience stress due to illness or other sources the individual experiences spiritual struggle. This study focuses on inpatients who are vulnerable to spiritual struggle: patients with eating disorders, suicide attempts or ideation, ETOH addictions, and a history of assault. Hypothesis: We hypothesized that spiritual care sessions in a hospital would be correlated with a decreased length of stay (LOS) in inpatients who are vulnerable to spiritual struggle. <p>Methodology</p> <ul style="list-style-type: none"> Reviewed qualitative and quantitative studies Examined EBI reports to find candidates for study Categorized patients into 3 groups: candidates, possible candidates or unspecified, and not candidates (for possible candidates I examined more patient information to see if they fit the criteria for our group of interest.) Used ICD Volumes 9 and 10 to find medical codes related to our group of interest Contacted financial analyst Utilized EPIC to match patients with diagnoses and to gather LOS data 	<ul style="list-style-type: none"> LOS data was gathered from an 18 month period (1/1/15-6/30/16) There was 11,351 inpatients in total, only 1047 of these patients had diagnoses that we were studying Due to time constraints I reviewed 30% of the patients 315 patients were reviewed Out of the 315 over half (172) had ETOH/addiction as a diagnosis One third had an eating disorder as a diagnosis The remaining had either suicide attempts/ideation or sexual assault as a diagnosis None of the sexual assault victims had a spiritual care visits and only two of the patients with suicide attempt/ideation had one. The mean was calculated for each group, and the average LOS are illustrated in a bar graph 	<p>Results</p>  <ul style="list-style-type: none"> The chart gives a varied response to our initial hypothesis. It provides the following information: <ol style="list-style-type: none"> There is a difference between LOS in patients with ETOH/addiction and eating disorders. Our data does not show a correlation between suicide attempts/ideation and spiritual care interventions, this may be due to our small sample size. No data was found on LOS with interventions for sexual assault patients. Therefore we have a null value. 	<p>Conclusions</p> <ul style="list-style-type: none"> Our hypothesis is not fully supported by the data but we can conclude the following: <ol style="list-style-type: none"> There may be a correlation between spiritual care visits and LOS in patients who have eating disorders or ETOH addiction. There does not seem to be a correlation between patients who have/had suicide attempts or ideation. There is no data to support a conclusion that sexual assault patients' LOS will be affected by spiritual care. <p>Recommendations</p> <ul style="list-style-type: none"> A larger sample size would have produced more valid and accurate results. Since there were two suicide attempt/ideation with a spiritual care intervention and no sexual assault patients with a spiritual care intervention those data values are not accurate. Further studies can be strengthened by controlling more variables. Our study had many uncontrolled variables such as: duration of visits and the number of chaplains per patient. Having less uncontrolled variables would improve the study. More research and education should be done on the connection between spiritual care and healthcare Explore further implication of not only biological but spiritual, psychological and social aspects in health care

INTERN: Lauryn Hamilton, Cleveland Early College High School

PROGRAM: Nursing Care

MENTOR: Rabbi Susan Stone

DEPARTMENT: Spiritual Care

RESEARCH: An Inquiry Into the Relationship Between Spiritual Care Interventions and Length of Stay in Select Hospital Patients

OBJECTIVE: Prolonged length of stay (LOS) financially affects both hospital and patient, negatively impacts a patient's quality of life for up to two years after discharge, and increases a patient's immediate chance of getting sicker. This study focused on patients who are vulnerable to spiritual struggle: those with eating disorders, suicide attempts or ideation, ethyl alcohol (ETOH) addictions, or a history of assault. Our hypothesis was that sessions of spiritual care in a hospital would correlate with a decreased LOS for in-patients who are vulnerable to spiritual struggle.

METHODOLOGY: Qualitative and quantitative studies were reviewed, and reports were examined to find candidates for the study. Data and information for 315 patients were retrieved. Patients were categorized into 3 groups: candidates, possible candidates or unspecified, and not candidates. The International Classification of Diseases was used to find medical codes related to our group of interest. A financial analyst was contacted. Electronic medical records were used to match patients with diagnoses and to gather LOS data.

OUTCOMES: The hypothesis was not fully supported by the data, but the following conclusions were reached. First, there may be a correlation between spiritual care visits and LOS in patients who have eating disorders or ETOH addiction. Second, there does not seem to be a correlation between patients who have/had suicide attempts or ideation and spiritual care visits. Finally, there is no data to support a conclusion that sexual assault patients' LOS will be affected by spiritual care.

A World Turned Upside Down

I cannot recover.
I will never believe that
there is a god who can help me.
I know that when the urge hits,
I have already lost.
Never again will I think
there is hope.
After the third relapse, I have begun to realize
drinking controls my life.
I will never allow myself to assume that
I can leave this hospital and be free again
when the truth is
I will always return, carried by a river of vodka and tears.
I refuse to accept the lie that
I can live a good life.
Without alcohol,
I will have to face my problems entirely alone.
Without a faith,
I have truly given up.
There is nothing to make me say
I will persevere.
The doctors and nurses tell me to believe, and
I refuse to listen.
The voice inside my head tells me it's over, and
I surrender.
I will never allow myself to say
there is a loving god.
I thought religion was a lie, but
the priests turned my world upside down.
(Now read this poem from bottom to top.)

AWARD	Best in Show, Language
EXPRESSIONIST	Mia Zivkovic
SCHOOL	Brecksville-Broadview Heights High School
CITY	Broadview Heights, Ohio
TEACHER	Todd Goodman
INTERN	Lauryn Hamilton
RESEARCH	An Inquiry Into the Relationship Between Spiritual Care Interventions and Length of Stay in Select Hospital Patients
TITLE	"A World Turned Upside Down"
MEDIUM/GENRE	Poetry

STATEMENT


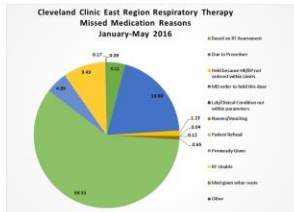
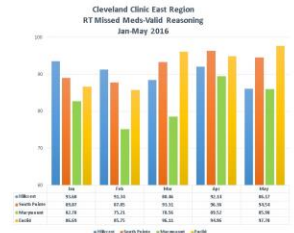

I have always believed in the power of religion, and I was intrigued by the idea that spiritual care had a positive impact on certain groups of patients that were very much in need of it. I chose to illustrate this through my poem, in which the narrator, a hopeless alcohol abuser, is able to change his or her perspective on life and find revitalized confidence in the prospect of recovery. Read from top to bottom, a very dismal perspective is revealed. However, read from bottom to top, the patient's point of view has found an increased level of optimism because of a priest who has opened his or her eyes to religion. Through this piece, I was able to express that religious beliefs are a powerful force that can entirely turn a bad situation around.

Example 3: (Math Interpretation of Research)

Evaluation of Missed Medications

Linden Miller; Susan Brant, BA, RRT;
 Dan Sutton, MPA, BS, RRT
 Cleveland Clinic

Civic Education
 Respiratory Therapy
 Internship Program

Problem Statement	Methodology	Results	Conclusions				
<ul style="list-style-type: none"> In order to give our patients the highest level of care, an established target value for missed medication administration for valid reasons was required. By creating an established target value for missed medication administration due to valid reasons, we can utilize the data that is collected and reported through the Respiratory Institute to create a standard for those who administer medication. <p>Background</p> <ul style="list-style-type: none"> Missed and delayed medicine: the second largest cause of medication incidents in 2007 Total missed medications for all reasons have reportedly occurred in anywhere from 1.4-8.4% of all prescribed doses All reasons were classified into one of two groups: valid and invalid Total 'not given' meds: tracked for past 5 months; 5% target for all missed medications established by pharmacy Focus has been on provision of education, documentation of missed medications for all reasons, and therapist accountability 	<ul style="list-style-type: none"> The retrospective study was performed by collecting and analyzing data obtained from Cleveland Clinic Electronic Medication Administration Record (eMAR) between January and May 2016. Standard mean calculation was used as statistical methodology. <table border="1"> <thead> <tr> <th>Valid</th> <th>Invalid</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> Due to Procedure/Off Unit Patient Refusal HRB because HRBP Not Ordered/Within Limits Lab/ Clinical Condition not within parameters Noticed/Running Previously Given Discontinue Pending MC Orders to hold this dose </td> <td> <ul style="list-style-type: none"> RT Unable Based on RT Assessment </td> </tr> </tbody> </table> <p>Data</p> <ul style="list-style-type: none"> Records of 8,464 medication administrations were evaluated to determine an accurate average of missed medications for valid reasons Inclusion: Inpatient areas (regular nursing floors, critical care, pediatrics) at Euclid, Marymount, South Pointe, and Hillcrest hospitals Exclusion: Outpatient areas The Institutional Review Board determined that this was a quality improvement study 	Valid	Invalid	<ul style="list-style-type: none"> Due to Procedure/Off Unit Patient Refusal HRB because HRBP Not Ordered/Within Limits Lab/ Clinical Condition not within parameters Noticed/Running Previously Given Discontinue Pending MC Orders to hold this dose 	<ul style="list-style-type: none"> RT Unable Based on RT Assessment 	<ul style="list-style-type: none"> "Due to Patient Refusal" and "Due to Procedure" were the most frequently occurring valid reasons documented  <ul style="list-style-type: none"> Inconsistent compliance rates from January-May 2016 for valid reasons 86.4% average target established for missed meds due to valid reasons per hospital (target range $\pm 5\%$=81.4% to 91.4%) 	<ul style="list-style-type: none"> Potential extensions include the use of other Cleveland Clinic regional hospitals' monthly medication administration data Target rate for missed medications due to valid reasons found to be 86.4% ($\pm 5\%$) for Cleveland Clinic hospitals Creation of a target value will provide a standard for medication administration Education is needed to ensure accurate documentation <p>Recommendations</p> <ul style="list-style-type: none"> Adhere to the monthly target for missed medications due to valid reasons Provide further education regarding criteria related to valid reasons (educational chart created) Potential for adjustment of the target value once all Cleveland Clinic hospitals have reported their missed medication data by establishing S.M.A.R.T. goals 
Valid	Invalid						
<ul style="list-style-type: none"> Due to Procedure/Off Unit Patient Refusal HRB because HRBP Not Ordered/Within Limits Lab/ Clinical Condition not within parameters Noticed/Running Previously Given Discontinue Pending MC Orders to hold this dose 	<ul style="list-style-type: none"> RT Unable Based on RT Assessment 						

INTERN: Linden Miller, Hudson High School
PROGRAM: Respiratory Care
MENTORS: Dan Sutton, MPA, BS, RRT; Susan Brant, BA, RRT
DEPARTMENT: Cardiology, Hillcrest Hospital

RESEARCH: Evaluation of Missed Medications

OBJECTIVE: Missed and delayed medicine was the second largest cause of medication incidents in 2007, reportedly occurring in 1.4 to 8.4% of all prescribed doses. The Respiratory Institute has tracked "not given" medications, with a 5% target for all missed medications established by the pharmacy. The purpose of this study was to determine a target percentage of missed medications due to valid reasoning. In order to give patients the highest level of care, an established target value for missed medication administration was required. By creating an established target value for missed medication administration due to valid reasoning, data that are collected and reported through the Respiratory Institute can be used to create a standard for those who administer medication.

METHODOLOGY: The retrospective study was performed by collecting and analyzing data obtained from electronic medical records between January and May 2016. Standard mean calculation was used as statistical methodology. The most frequently occurring valid reasons documented were "Due to Patient Refusal" and "Due to Procedure." Inconsistent compliance rates were shown for valid reasoning documentation. An average target of 86.4% ($\pm 5\%$) was established for missed medications due to valid reasoning per hospital.

OUTCOMES: Potential extensions include the use of other Cleveland Clinic regional hospitals' monthly medication administration data. The target rate for missed medications due to valid reasons was found to be 86.4% ($\pm 5\%$) for Cleveland Clinic hospitals. The creation of a target value will provide a standard for medication administration. Further education is needed to ensure accurate documentation.

Curriculum Connections

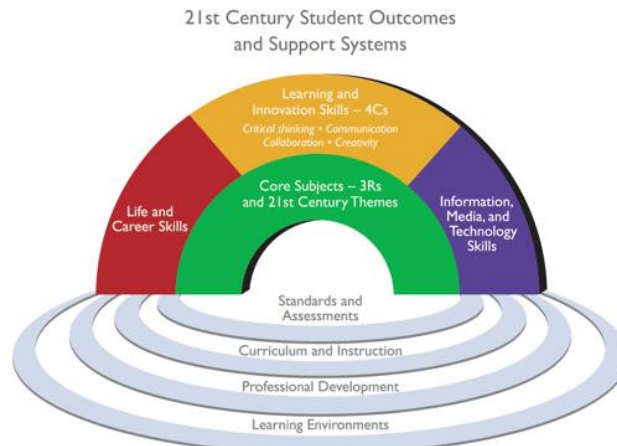
Linked to National and State Academic Content Standards, eXpressions® encourages students to utilize creative expression to explore science and medicine through the eyes of a 21st century learner.

21st century learning transforms how learning is practiced to expand the range of measures in student achievement. It is learning that helps students to build and construct their own understanding through real-world experiences and interactions with peers in group activities.

eXpressions® aligns to the following 21st Century Learning Standards:

- Focuses on 21st century skills, content knowledge, and expertise.
- Builds understanding across and among core subjects as well as 21st century interdisciplinary themes.
- Emphasizes deep understanding.
- Allows for multiple measures of mastery.

To learn more, please visit the [Partnership for 21st Century Learning's website page](#).



To learn how eXpressions® aligns to Ohio's New Learning Standards and Common Core State Standards, please visit the [Ohio Department of Education's website](#).

Contacts

Cleveland Clinic Office of Government and Community Relations

Bryan Pflaum, MFA
Director, Civic Education
pflaumb@ccf.org
216.448.0602

For questions regarding the eXpressions® Online Submission Form:
Chris DeNicola
denicoc@ccf.org
216.448.0757

eXpressions® Master Teacher Mentors, Art and Language

Anne Cole, MAEd
aecolex4@yahoo.com

Christine Filmer, MAEd
Art4cris@aol.com

Chuck Zitko, MEd
chazitko@gmail.com

eXpressions® Master Teacher Mentor, Math

Dan Palmer, PhD
dpalmer@jcu.edu