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eConsent Forms on Ancillary Applications with Electronic Medical Record Integration –
Reducing Consent Error

UNIVERSITY OF SAN DIEGO
Hahn School of Nursing and Health Science
Beyster Institute of Nursing

DOCTOR OF NURSING PRACTICE PORTFOLIO

by

Lilian J. Chan, MSN, RN, PCCN-K

A Doctoral of Nursing Practice Portfolio presented to the
FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
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requirements for the degree

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**Electronic Consent Forms on Ancillary Applications with Electronic Medical Record
Integration: Reducing Consent Error Rates**

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Abstract

Purpose of Project: The purpose of this project is to utilize electronic consents (eConsents) with ancillary applications as an evidence-based intervention to reduce consent errors.

Background: Studies show that paper-based handwritten forms have an error rate of up to 50%. Consent errors, especially in the preparation of surgery, are not merely documentation errors but patient safety pitfalls that allow for incorrect surgeries or financial loss due to aborted or delayed interventional cases. Internal organizational evidence indicates the implementation of an evidence-based opportunity as there was no use of electronic tools for consents utilized in the inpatient setting.

Methods: Inpatient departments were provided tablets that contain a consent application connected with the electronic medical record (EMR). Only blood and surgical consents were transformed into eConsent format. The electronic form is automatically attached to patient's EMR to prevent misplacement and ease of access for all treatment team members. System-wide education was provided to nursing staff on how to access eConsents when preparing the patient for surgery as well as associated policy implications. Collaboration with analysts, leadership, and clinicians was essential to ensuring successful inpatient operational use when launched in May 2021. Metrics were tracked over an additional five months post-intervention.

Results: The primary outcome of reducing the eConsent error rate per patient day indicated an overall decrease of 42% from January 2021 to October 2021. However, this decrease comparing 5 months pre-intervention versus 5 months post-intervention and the associated result of the two-tailed independent samples t-test was not significant based on an alpha value of .05, $t(8) = -0.42$, $p = .686$. Secondary outcomes showed a steadily increase in eConsent usage between May 2021 to October 2021.

Evaluation: eConsents have proven worthy for surgical consents and in the reduction of consent error and continued use. Considerations should be made to expand eConsents to other types of consent forms not only for the consolidation of patient documentation and enhanced workflow but to further pursue safe patient practices and prevent documentation error. Nursing informatics is essential to coordinating evidence-based interventions on electronic healthcare platforms that also marry well with bedside operations and workflows.

Keywords: electronic consent, informatics, nursing, applications

Electronic Consent Forms on Ancillary Applications with Electronic Medical Record Integration: Reducing Consent Error Rates

Errors in surgical consents may seem dubious as they are a single document, but such mistakes on a scrutinized form, utilized for legal and patient education purposes can be serious. Studies show that paper-based handwritten forms have an error rate of up to 50%. Consent errors are defined as issues with the quality of the documentation, misplacement, or illegibility (Reeves et al., 2020). Consent errors, especially in the preparation of surgery, are not merely documentation errors but patient safety pitfalls that allow incorrect surgeries or a financial loss due to aborted interventional cases (Leclercq et al., 2010; St John et al., 2017). This question addresses that an intervention, may it be technology-based such as electronic consents (eConsent), is necessary to amend the high error rate that can conclude to patient safety, financial and legal costs. Nursing and nursing informatics is quintessential in the consent process not only as a witness but to ensure at all stages of the perioperative continuum that such a form is correct and transferred appropriately before beginning the invasive procedure consented to. Additionally, nursing informatics serves as the vector to ensuring evidence-based applications such as these are applied and operationalized by clinicians ergonomically to ultimately support quality care outcomes.

I. Background & Evidence for Problem

Given the interest in utilizing technology-based tools to improve patient outcomes in the realm of surgery and electronic consent preparation, the primary intervention concepts studied in this clinical question are consent forms and medical informatics applications. A MeSH search was conducted via PubMed in which the following terms were included and was limited to the last five years with a Boolean connector: ("Consent Forms"[Mesh]) AND "Medical

Informatics"[Mesh]. Finding these terms in PubMed also made it easier to search in CINAHL with the following subject headings and Boolean terms in a 5-year limitation: consent forms (MH Exact Subject Heading) AND medical informatics (MH Exact Subject Heading).

By utilizing these subject headings, Boolean terminology, and adding a publication date limitation, the search was narrowed to 11 results in Pubmed and 51 results in CINAHL. Several studies have indicated multiple varieties of platforms to introduce eConsent forms. Additionally, these studies identify the error rate as an excellent outcome to capture. Error rates include but are not limited to illegibility issues, the wrong patient, missing required documentation, or the form's misplacement. All literature articles discussed are original cohort studies. The major studies have been comprised into a literature summary table in Table 1.

Table 1**Major Related Studies: Summarized Literature Evaluation Table**

<i>Citation: (i.e., author(s), date of publication, & title)</i>	<i>Purpose of Study</i>	<i>Conceptual Framework</i>	<i>Design/ Method</i>	<i>Sample / Setting</i>	<i>Major Variables Studied and Their Definitions</i>	<i>Measurement of Major Variables</i>	<i>Data Analysis</i>	<i>Study Findings</i>	<i>Worth to Practice Strength of the Evidence</i>
<i>Chhin, V., Roussos, J., Michaelson, T., Bana, M., Bezjak, A., Foxcroft, S., Hamilton, J. L., & Liu, F. F., 2017, Leveraging Mobile Technology to Improve Efficiency of the Consent- to- Treatment Process.</i>	Compare error rates of paper-consent forms versus electronic consents in both a feasibility and system-wide implementation program	No theory mentioned – quantitative study	Cohort	Patients participating in radiology program/Outpatient radiology clinics	IV = consent to treatment forms via -IV1: paper versus -IV2: electronic DV = number of consent errors related to incomplete forms, missing/incorrect information, spelling	IV = measure by finite number of consents analyzed DV = measure by finite number of errors identified per phase	Simple frequency data analysis of IV and DV via rates	IV1: paper-based consents (n=343) with an error rate of 7% IV2: e-Consents (n=5600) with an error rate of 0.32%	GRADE: A Risk or harm?: No Worth to practice?: Yes – Although methodology of the selected electronic platform is complicated (due to manual upload) compared to other studies, the overall premise indicates that electronic-based platforms, even if complicated, will still provide safe patient outcomes compared to paper delivery of consents. Level of evidence: 4 (cohort study/non-experimental)

errors,
completely
lost
forms

Key strength: Large sample size given the number of e-Consent forms given the patient population and the disease process requiring a high number of consents for every radiation appointment. The large sample size of e-consent with an accompanying miniscule error rate indicates e-consents are viable in the outpatient setting.

Key weaknesses: Unequal sample sizes in comparison. Paper consents sample size significantly smaller than e-consent sample size. Hard to truly have an equal comparison although outcome data may suggest otherwise regarding error rates. End-user feedback provided was also very limited in size to make an honorable conclusion on end-user e-consent platform usage.

Feasibility?: Maybe – Mobile device usage to make e-consents easier and more mobile to fill out is feasible, however, platform selected does require the user to manually update it into the electronic medical record. The results show that although this electronic process is more complicated, it does undoubtedly provide safe patient outcomes with reduction in error rate. e-Consent platform with either automatic or less steps when connecting the document to the patient's medical record may be more feasible and easier to apply.

<p><i>Hwang, M. A., & Kwak, I. J., 2015, Description of a</i></p>	<p>Analyze the rate of grown and adaptati</p>	<p>No theory mentioned – quantitative study</p>	<p>Cohort</p>	<p>All patients requiring conse</p>	<p>IV: consent to treatment s forms via</p>	<p>IV: measure by finite number of departments in Seoul National</p>	<p>Simple frequency data analysis of DV via rate of selected</p>	<p>By 2015, 95% of consents were filled via electronic</p>	<p>GRADE: A Risk or harm?: No Worth to practice?: Yes – highly applicable in</p>
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<p><i>Mobile-based Electronic Informed Consent System Development.</i></p>	<p>on of electronic consent forms over paper consent forms and applications leading to high adoption of new consent modality</p>	<p>nt in the inpatient and/or emergency department setting/ Seoul National University Hospital</p> <p>-IV1: paper versus electronic DV = adaptation rate between 2011 to 2015</p>	<p>University Hospital</p> <p>DV: selected consent filled out over time between 2011 – 2015 by rate</p>	<p>consent platform completed</p>	<p>mobile-based platforms. Paper consents decreased to minimum by 2015.</p>	<p>current setting of EBP project given the intervention used (tablets).</p> <p>Level of evidence: 4 (cohort study/non-experimental)</p> <p>Key strength: Points out reasons/ characteristics of mobile-based electronic consents were successful such as forced responses on required areas, easier uploading to medical record, ability to use fingers to draw signature, and prevention of forgery. Even includes negative feedback that can help in the design of the EBP intervention such as unstable wi-fi, time it takes to fill out electronic consent.</p> <p>Key weaknesses: Minimum description of how mobile-based platform is connected to patient or health systems medical record system.</p>
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									Feasibility?: Yes – concludes that tablet/mobile apps that utilize electronic consents are viable in the acute care and inpatient setting. Also indicates that this platform ensures completion of consent areas that are commonly missed and part of error rates related to paper consents. Current healthcare system EBP project will be implemented has access to tablets as an electronic consent tool as well.
<i>Reeves, J. J., Mekeel, K. L., Waterman, R. S., Rhodes, L. R., Clay, B. J., Clary, B. M., & Longhurst, C. A., 2020,</i>	Compare error or inadequacy rates between conventional handwritten consent forms via	No theory mentioned – quantitative study	Cohort	Patients admitted to inpatient requiring surgery or scheduled outpatient	IV = adult consent to treatment forms via -IV1: paper versus -IV2: electronic	IV = measure by finite number of consents analyzed DV = measure by finite number of errors identified per phase	Simple frequency data analysis of IV and DV via rates	IV1: paper-based consents (n=100) had error-rate of 32% IV2: electronic consents (n=100)	GRADE: A Risk or harm?: No Worth to practice?: Yes – highly applicable to current setting of EBP project given on same type of forms, similar settings in peri-operative inpatient areas, and same integrated electronic medical record platform

<p><i>Association of Electronic Surgical Consent Forms With Entry Error Rates.</i></p>	<p>electronic consent forms available via health system's electronic medical record</p>	<p>patient DV = surge number of Peri-operative areas in two hospital settings as well as pilot clinic in outpatient surgery center</p>	<p>had error-rate of (1%)</p>	<p>Level of evidence: 4 (cohort study/non-experimental)</p> <p>Level of evidence: Same DV and IV wanting to be operationalized in EBP project with strong evidence of electronic consent success within a medical record platform.</p> <p>Key strength: Equal parametric sample sizes indicate that electronic consents are more safe and viable delivery method of consents prior to surgery</p> <p>Key weaknesses: Failed to explain which areas paper consents audited originated from and/or type of patient populations both paper consent and electronic consent utilized on (ex. interventional radiology, same-day procedures, non-invasive?)</p>
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									Feasibility?: Yes – Methodology indicates the same electronic medical record platform with electronic consent capability is possible and applicable in the inpatient setting.
<i>St John, E. R., Scott, A. J., Irvine, T. E., Pakzad, F., Leff, D. R., & Layer, G. T., 2017, Completion of handwritten surgical consent forms is frequently suboptimal and could be improved by using electronic ally generated,</i>	To identify the number of errors in phase 1 with handwritten consents versus phase 2 where some paper consents and some electronic consent forms were utilized (web-	No theory mentioned – quantitative study	Cohort	Admitted patients to inpatient setting/ Two separate hospitals in the UK	IV = adult consent to treatment forms via -IV1: paper versus -IV2: electronic excludes non-operative, parental, impaired consciousness, or lack of capacity consents	IV = measure by finite number of consents analyzed DV = measure by finite number of errors identified per phase	Simple frequency analysis of IV and DV rates, median, and range	Phase 1 = handwritten consents analyzed (n=99) with patient details (10%), procedure details (30%) and patient sign-off (27%) errors found Phase 2 = handwritten consents analyzed (n=61)	GRADE: A Risk or harm?: No Worth to practice?: Yes – highly applicable to current setting of EBP project given same type of forms being focused on (surgical) and inpatient setting Level of evidence: 4 (cohort study/ non-experimental) Key strength: Direct correlation of methodology and DV wanting to be studied in EBP change. Strong evidence of electronic consents return of interest, patient outcomes, and discussion

*procedure
-specific
forms.*

based
applicati
on)

DV =
number
of
consent
errors
defined
by
incorrect
or
illegible
patient
details,
procedur
e details,
or patient
sign-off

with 44%
errors
found and
electronic
consents
(n=29)
where 0%
errors
found

of application of
intervention can reduce
legal cases related to
negligence or battery.
Brings to light current
state of majority
institutions using
traditional and sub-
optimal paper consents
with an intervention that
is feasible.

Key weakness: The
number of electronic
consents obtained is
relatively smaller to
number of paper consents
analyzed. Phase 2 was
limited to one inpatient
unit (breast cancer),
therefore, variety
and number of consent
forms were limited to
account for errors to be
found in other patient
populations related to
consent forms.
Illegibility is subjective
based on reader.

Feasibility?: Yes –
Methodology indicates a
simple web platform

separate from electronic
medical record is
sufficient as a electronic
consent modality and in
the inpatient/acute care
setting with admirable
outcomes.

By utilizing a mobile application on tablets, paper-based consents were reduced at a major hospital in South Korea. The mobile app's utilization with coordinating tablets increased to 95% at the study's hospital. Although paper-based consents were made available for the few patients who required a more tactile form of consenting due to motor coordination issues, all-in-all, the implementation of this eConsent platform over three years decreased the error rate to 0%. This is due to the mobile application design that required forced responses before completing the legal document (Hwang & Kwak, 2015). Cohort studies also implemented at a large university hospital conclude promising results using eConsents integrated into the organization's electronic medical record (EMR). (Reeves et al., 2020) made the eConsent forms available within the patient's chart as opposed to physical paper consents. Paper-consents (n=100) resulted in an error rate of 32% whereas eConsents (n=100) concluded in an error rate of 1%. This method ensures the correct form in the correct electronic chart and is consolidated in one place, therefore preventing physical loss of the form. Additionally, other than the signature being signed, all other items required typed responses, ergo, removes the error of illegibility.

Finally, the use of web-platforms on a computer to generate and complete eConsents separate from the EMR system has been proven to be feasible as well. An original study by (St John et al., 2017) shows that with paper-consents analyzed (n=99), 10% had patient details missing, 30% had issues with procedure details, and 27% had errors with patient signatures. In contrast, electronic consents on the web-platform (n=29), even though this electronic process is more tedious and technical due to the need to upload the electronic document given the separation from the EMR, still concluded to a better consent error rate of 0%.

Internal evidence within the project's organization also indicated benefits of the usage of eConsents. eConsents was launched in the outpatient setting, however, without the usage of tablets to obtain the patient's signature. Users in the outpatient and ambulatory setting obtained patient signatures on the electronic consent within the EMR record, but with the use of either a computer on wheels and mouse or pressure-sensitive electronic signature pad. The inpatient setting largely did not utilize eConsents, but given the technical start in the outpatient setting, such paved the way for an easier technical and operational opportunity to apply the ancillary eConsents evidence-based solution.

Strengths and Limitations Discussion

The greatest strength Hwang & Kwak (2015) was able to point out beyond the study's extensive timeline of the course over four years with system-wide results was that the tablet-based and mobile application platform could design an eConsent that is not only legible but ensured appropriate completion of the legal document. The tablet platform also allows for finger-signatures within the form's completion. A significant limitation of the study was the lack of detail or description of how this tablet-based consent form is connected to the patient's EMR record. Reeves et al. (2020) surmise a strong case given the equal comparison of paper consents versus electronic consents concerning consent error outcomes. This study, given the similar parametric sample sizes, also concludes that eConsents are a safe and viable delivery method. However, the study did not necessarily indicate a specific patient population that requires consent, such as radiology, same-day procedures, non-invasive procedures, and more. St John et al. (2017) suggest that eConsents are a viable solution to consent errors, as evidenced by the results. The number of paper consents analyzed to conclude the unreliability of paper consents and that eConsents, even with a problematic electronic platform, show safer patient results.

Additionally, the study infers long-term issues related to paper-consents for discussion, such as detrimental patient outcomes or legal cases related to negligence or battery. This study does fail in the sample size as eConsents versus paper consents were non-parametric. The patient population where eConsents were conducted was limited to one inpatient unit and could have

II. Evidence Based Intervention

Supported by the literature, the evidence-based intervention therefore will be the utilization of tablets to capture surgical or blood consents electronically within the inpatient setting. Blood and surgical consents were selected as they are the most ordered and utilized paper consent in the selected organization per Table 2.

Table 2

Most Ordered Consents

<i>Rank</i>	<i>Form#</i>	<i>Title</i>
1	151-090	Consent for Surgery
2	151-425	Consent for Minor Surgery
3	151-132	Consent for Blood Transfusion
4	151-436	Consent for Gastrointestinal Procedure
5	D2071	Disclosure and Consent for Positron Emission Tomography (PET)
6	D4045	Consent to Cardiovascular and Peripheral Vascular Procedures
7	D1474	Patient Agreement/Consent for Home Infusion Services
8	D1324	Consent to Receive Psychotropic Med-Voluntary Patient
9	D1598	Consent for Use of Donor Human Milk
10	D3842	Consent to Epidural Analgesia
		Other Consent forms that have been ordered 12/15/20 - 5/15/21
	D151	Consent for Immunization/Vaccination
	D211	Consent for Second Trimester Abortion
	D581	Consent for Radiation Therapy
	D715	Consent for External Beam Radiation Therapy to Prostate
	D716	Consent for External Beam Radiation Therapy to Abdomen
	D717	Consent for External Beam Radiation Therapy Head/Neck
	D718	Consent for External Beam Radiation Pelvis
	D796	Consent for Medical Photographs

D819	Consent for Use of Email
D939	Consent for Second Trimester Medical Termination
D1016	VBAC Consent
D1030	Consent to Special Invasive, Diagnostic or Therapeutic Procedure
D1474	Patient Agreement and Consent for Home Infusion Services
D1609	Consent AICD Defibrillator
D1611	Consent for Electrophysiology
D1612	Consent for Pacemaker
D1844	Consent for Routine Newborn Recommendation
D1851	Consent for Radiation Therapy to the Brain, Spine or Nervous System
D2048	Consent for Communication with Family Members
D2058	Consent for Intrauterine insemination
D2129	Consent to Hemodialysis Intermittant or Continuous
D2234	Consent for Hyperbaric Therapy
D2245	Consent for Apheresis Procedure
D3097	Consent to Use of the Angel Eye Camera System
D3270	Consent for Radiation Therapy for Breast Cancer - Whole Breast
D3508	Integrated Behavioral Health Informed Consent
D3910	Consent to Emergency Diagnostic or Therapeutic Procedures
D4046	Consent to Structural Heart Procedure
D4130	Consent to Cancer-Directed Drug Therapy
D4151	Patient Consent for Participation in Outpatient Monitored or Modified Monitored Exercise and Education Program
D4279	Consent to Bronchoscopy Procedure
D4598	Consent for Power Morcellation

III. Establish Benchmark(s)

Data will be benchmarked against pre-intervention data between the months of January 2021 to May 2021 and post-intervention data between the months of May 2021 to October 2021. Internal data of the organization indicates a baseline of 27 consent errors reports between the months of January 2021 to April 2021. With inclusion of number of patient days, post-intervention data should conclude to a decreasing trend in the rate of consent reported errors per 1000 patient days. Current state of the organization utilizes paper-based surgical and blood consents only in the inpatient setting, and therefore matches with external evidence that encourages organizations to transition from paper to electronic consent platforms. After the May

2021 launch, ideally change would be seen with a decreasing rate of consent errors per patient days, and an increase in the number of eConsents utilized at a system-wide level.

IV. PICO Question

Given that my project focuses on reducing consent errors with informatics and technology-based applications, the following intervention-based PICOT question has been formulated: In patients admitted to UC San Diego Health requiring surgical procedures (P), how does utilizing electronic consent forms on informatics applications (I), compared with traditional paper consent forms (C), affect the organization's consent error rate (O), within 5 months of May 2021 to October 2021 (T).

V. Evidence-Based Practice Model

Given that the project focuses on using electronic consents (eConsent) for patients who require surgery to reduce consent error, the model selected for guiding this change is the Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP). The JHNEBP Model focuses not only on the translation of evidence into practice but also on the change's efficiency with a lens on the exceeding need for interdisciplinary collaboration (Melynk & Fineout-Overholt, 2017). The eConsents process, being on an informational systems platform, naturally requires an input of nurses and patients who will become the end-users utilizing the practice change, leaders who can review the most substantial evidence, and analysts who can ensure proper technical and operational support. Evidence has shown regarding eConsents that a plethora of different platforms allow the electronic form to be delivered (ex. tablets or desktop); however, all lead to admirable patient outcomes (Chhin et al., 2017; Hwang & Kwak, 2015; St John et al., 2017). Also, in consideration, there is interest in bringing eConsents to a multitude of clinical spaces (ex. inpatient, outpatient, same-day surgery); thus, the Johns Hopkins cycle is beneficial to

continue evaluation inquiry in each setting and to ensure the evidence is the best and applicable (Dearholt & Dang, 2018). Finally, the JHNEBP Model also is open to external factors for consideration, such as regulations and quality measures. Evidence has shown that eConsents must also consider legal concerns to ensure that this process meets all sound and statutory requirements (Chen et al., 2020). This furthers rationale as to the need to apply the JHNEBP to the eConsent clinical project.

VI. Project Implementation/Process Plan

The following implementation plan and timeline is designed to follow the JHNEBP model.

Practice Question Phase (Steps 1-5)

- Identify key stakeholders needed for the project, how to find them, and any barriers to participations based on the identified PICO question and inquiry into consent challenges. Key stakeholders with their primary title, rationale, identification method, and barriers to participation are listed in Table 3.

Table 3

Major Key Stakeholders

<i>Title</i>	<i>Rationale</i>	<i>Identification Method</i>	<i>Barriers to Participation</i>
<i>Active Stakeholders (14 main stakeholders)</i>			
<i>Surgical Provider Project Lead</i>	Designs workflow changes to accommodate to eConsent application follow recommended guidelines, procedures, protocols, and evidence about provider requirements.	Within perioperative provider leadership	None – requirement for fellows to complete optimization program
<i>Inpatient Nurse Informaticist Project Lead</i>	Ensures that all education and workflow operation designs related to eConsent launch meet inpatient and perioperative frontline nursing needs and are evidence-based. Messaging is	Within Information Systems (IS) department	None

	relayed via all appropriate channels, and nursing policy changes are approved by proper councils/directors. Also tracks baseline and continuing key performance indicators.		
<i>Ancillary Applications Analyst</i>	Builds environment for eConsent form build by Peri-Op analyst to be made available on selected ancillary application and tablet in the inpatient setting	Within the Ancillary Applications department	Only one analyst, time may be thin
<i>EMR Peri-Op Clinical Documentation Analyst</i>	Builds eConsent form to be sent to ancillary applications analyst and ensures availability on desktop patient EMR record as well	Within the EMR ClinDoc department	None
<i>Information Technology Security Analyst</i>	Oversees all builds are sound and do not lead to accidental access to protected patient information	Within IS department	None
<i>Project Manager</i>	Provides further structure and momentum on a large scale and system-wide projects	Within IS department	None
<i>Director of Nursing Informatics</i>	Provides resource or financial allocation if needed for the project (education, go-live support, materials/tech)	Within IS department	None
<i>Inpatient Director of Ancillary Applications</i>	Provides resource or financial allocation if needed for the project (education, go-live support, materials/tech)	Within IS department	None
<i>Perioperative nursing management (2)</i>	Provides insight on daily operational workflows for receiving surgical patient before and during go-live of eConsent process	Within IS department	None
<i>Regulatory Affairs (2)</i>	Clears any modifications to eConsent process that may require further analysis given consents as a legal document. This phase of care is when consent forms are scrutinized the most.	Within the regulatory department	Currently short-staffed may require large advance notice for any legal recommendation needs
<i>EMR Inpatient Principal Trainers (2)</i>	In-personal or virtual support personnel during go-live of eConsent launch. Design learning modules and tip sheets as need. Can teach to new workflow during new employee orientation.	Within IS Training department	Requires largely advance notice for any in-services needed

Passive Stakeholders (36 main stakeholders + 2 champion groups)

<i>Frontline inpatient nursing management (25)</i>	Insight and feedback on eConsent tablets and EMR process when transferring patients to perioperative phase of care	Nursing roster or daily engagement tier 1 and 2 daily huddles	May have concern on how tech or additional equipment may be supplied to support eConsents
<i>Inpatient Directors of Nursing (5)</i>	Report any issues noted during go live of eConsents (resource/materials, escalated issues affecting patient care)	Nurse Executive Council	None
<i>Chief Medical Information Officer</i>	Approve any additional resources needed for initiative if not able to be covered	Within IS department	None
<i>Inpatient Nursing Education Department (6)</i>	Although not principal trainers required to provide support, it is essential they are minimally aware	Within Nursing Education department	None
<i>**Peri-operative frontline nursing champion(s)</i>	Additional support during go-live on how to use eConsents with frontline staff	Call can be made from major shared nursing governance councils	Requires extra training money for champions to be utilized if beyond 36-hour work week
<i>**Inpatient frontline nursing champion(s)</i>	Additional support during go-live on how to use eConsents with frontline staff	Call can be made from major shared nursing governance councils	Requires additional training money for champions to be utilized if beyond 36-hour work week

Evidence Phase (Steps 6-10)

Create evidence-based practice plan change protocol:

- Internal and external search of evidence (step 6):
 - Internal search for evidence: Since July 2019, the University of California – San Diego (UCSD) has had 116 consent errors. Surgical consent errors are captured at UCSD to include but not limited to missing signatures, wrong

procedure listed, incorrect patient, or failure to even obtain before surgery start.

- External search of evidence: As seen by literature synthesis table collated
- MeSH search was conducted via PubMed in which the following terms were included and was limited to the last five years with a Boolean connector: ("Consent Forms"[Mesh]) AND "Medical Informatics"[Mesh].
- CINAHL with the following subject headings and Boolean terms in a 5-year limitation: consent forms (MH Exact Subject Heading) AND medical informatics (MH Exact Subject Heading).
- Appraise level and quality of each piece of evidence, summarize the individual evidence, synthesize overall strength and quality of evidence (step 7-9): See Table 1
- Develop recommendations for change based on evidence synthesis (step 10):
 - Evidence overall: Compelling evidence to initiate project in the inpatient and perioperative setting due to baseline metrics indicating poor outcomes and room for improvement. Sufficient and current evidence of eConsents supports successful and safe outcomes related to consent error rates and end-user feedback. Evidence-based practice change to be utilized given internal evidence indicating no use of electronic tools for consents and need to pursue change with supportive external evidence.

Translation (Steps 11-18)

- Determine fit, feasibility, and appropriateness of recommendation (step 11):
 - Overall: External evidence matches setting in which evidence-based initiative to be implemented

- Project setting: inpatient and perioperative settings match evidence of surgical inpatient and perioperative patient population and implementation at a large health care system. Setting matches with evidence-based translated path.
- Action Plan (step 12):
 - Provide at least 2 tablets for every inpatient and perioperative department with consent application. Consent application is to be utilized by physician performing patient's surgery to obtain patient signature on electronic surgical consent as well as blood consent.
 - Hard-stops on electronic consent ensure signature and legible patient information is obtained prior to surgery.
 - Additionally, form now attached to patient's EMR to prevent misplacement.
 - Education provided to all acute care nursing staff on use of electronic consents in both the EMR record and tablet.
 - Education provided to all providers on how to initiated an electronic consent in the EMR record.
 - Specific training materials to disseminate
 - UC San Diego Learning Module
 - EMR and application tip sheets
 - Manager's toolbox for broken equipment, technical support, or escalation needs
 - Specific shared governance and council meetings to educate information to
 - Nursing Cabinet
 - Nursing Clinical Practice and Informatics Council

- Provider Grand Rounds
 - Nurse Executive Meeting
 - Nursing Manager's Tier 1 and 2 closer to go-live
- Go-live team consisting of analysts providing in-service on new device when distributed amongst nursing units.
 - See Table 4 on timeline with details of action plan tasks. See Table 5 on go-live launch scheduled utilized and number of tablets distributed.

Table 4***Timeline of Project***

<i>Phase</i>	<i>Intervention</i>	<i>Projected Date</i>
<i>PRACTICE QUESTION</i>	<ul style="list-style-type: none"> • Define the EBP question (PICOT) regarding the current organizational status with consent forms • Discuss scope of EBP question with Director of Nursing Informatics (faculty advisor) • Determine project leads • Initiate team meetings with identified active stakeholders to further define scope of the EBP question and potential action plan needs before proceeding 	September 2020 – October 2020
<i>EVIDENCE</i>	<ul style="list-style-type: none"> • Conduct internal evidence of current organizational practice related to consents • Identify baseline data for consent error rates • Conduct external search for evidence • Appraise, summarize, and synthesis overall strength and quality of evidence (literature evaluation table) • Develop recommendations based off of combination of internal and external evidence 	October 2020 – November 2020
<i>TRANSLATION</i>	<ul style="list-style-type: none"> • Report evidence to active stakeholder group • Determine if evidence and recommendations are feasible in current organizational state and intended use (inpatient, peri-op) • Create test environments with ancillary and clinical documentation analysts • Define key performance indicators and operational outcomes/goals • Request support for Nursing Informatics and Director of Ancillary Applications to pursue project operations 	November 2020-December 2020

<ul style="list-style-type: none"> Utilize Project Manager to assist with additional project planning needs 	
<ul style="list-style-type: none"> Finalize action plan with provider lead and active stakeholders 	January 2021 –
<ul style="list-style-type: none"> Submit IRB excusal to organization of project as well as university 	May 2021
<ul style="list-style-type: none"> Create dissemination and communication plan with provider and EMR principal trainers (involve passive stakeholders as necessary) 	
<ul style="list-style-type: none"> Secure resources and funding for additional tablets for departments that do not have them from IS Directors 	
<ul style="list-style-type: none"> Disseminate and communicate action plan to all identified communication nursing and provider groups (last half of January) 	
<ul style="list-style-type: none"> Go live with eConsents (May 2021) 	
<ul style="list-style-type: none"> Track key performance indicator (consent error rate) 	May 2021 –
<ul style="list-style-type: none"> Track iReports related to consent issues during this time 	December 2021
<ul style="list-style-type: none"> Evaluate outcomes on error rates or process issues identified from end-users and iReport data 	September 2021 (<i>4-month mark</i>)
<ul style="list-style-type: none"> Report outcomes to main active group 	
<ul style="list-style-type: none"> Evaluate outcomes on error rates or process issues identified from end-users and iReport data 	September 2021 –
<ul style="list-style-type: none"> Report outcomes to communication groups identified 	November 2021
<ul style="list-style-type: none"> Initiate practice improvements if necessary 	(<i>6-month mark</i>)
<ul style="list-style-type: none"> Identify next steps with active group (possibility of implementing other types of paper forms and translating them to electronic format) 	December 2021

Table 5

Cost-Benefit Analysis

Costs – Your proposed project Intervention(s)		Costs – Comparison (i.e. usual care or the current state)	
Financial	Non-Financial	Financial	Non-Financial
<p><u>End-user Training Cost (All one-time cost)</u> Learning module for inpatient nurses (per policy, modules <15 minutes do not need to be paid for): \$0</p> <p><u>Listed FTEs 0 cost as project is part of standard duties:</u> (1) Nurse Informaticist time to create training module (part of standard duties): \$0</p> <p>(1) MD Informatics Resident to educate providers on new eConsent process \$0</p> <p>(1) Welcome Analyst: \$0</p> <p>(1) Peri-Op Analyst: \$0</p> <p><u>New Technology (all one-time cost except consent software recurring annual cost)</u> tablets for all inpatient units (62 tablets with 3 year AppleCare and eWaste charge): \$309.00 x 62 =\$19158.00</p>	<p>Leadership Nursing executive and managerial support for workflow change</p> <p>Risk management support for workflow change</p> <p>Hospital provider support for workflow change</p> <p>Technology already in place needed Electronic medical health record available on computers</p>	<p>Paper Consents (All annual recurring cost) Paper consent form #D151-090 for patient to sign. Comes in (1) pack of 100 per unit: 49 x \$25.00 per pack = \$1225.00 per month x 12 months = \$14700 per year</p> <p>Secretary time to upload paper documents (est. 30 minutes per week) = (.5) hours x \$18.00 x 49 secretaries x 52 weeks = \$21168 per year</p> <p>TOTAL: \$35868</p>	<p>Unit Operations Secretary/Leadership must keep track of consent paper stock</p> <p>Cost of ordering paper consents comes out unit’s budget</p>

<p>Consent software (per year – annual recurring cost): \$5402.00</p> <p>RTLS Tracker Tags (1 Tracker per tablets): \$34.00 x 62 = \$2108.00</p> <p><u>In-Person Support on launch day</u> (11) IS volunteer employees: \$0</p> <p>TOTAL COST: \$26668</p>			
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Benefits		
Financial (Examples: Actual Savings; Risk Reduction/prevention; Cost Avoidance)	Non-Financial (Examples: Improved Service, Satisfaction; Client Loyalty)	Intangible (Examples: Appreciation; Improved Communication; Decreased Liability; Improved Efficiencies; Streamlined Processes)
<p>Cost avoidance of delayed surgeries related to consent errors prior to incision <i>-Baseline comparison if program to run for a full year with estimated launch date of May 2021 with a 50% reduction (97 consent errors between May 2020 – May 2021) = 49</i> <i>-Average of 17 minutes per delay related to consent errors (Reeves et al., 2020)</i> <i>-Average cost \$37.00 per minute for inpatient OR time (Childers & Maggard-Gibbons, 2018)</i></p>	<p>Improved patient satisfaction with consent delivery catered to meet patient needs (ex. larger font versus paper consents with small font)</p> <p>Improved patient experience with zero delay to operating room</p> <p>Improved employee satisfaction with easy-</p>	<p>Streamlined process from outpatient to inpatient (outpatient already utilizing eConsents)</p> <p>Streamlined process within inpatient interdisciplinary team with consolidated location of eConsent</p> <p>Decreased liability costs related to incorrect surgeries stemming from consent errors</p>

<p>= 49 cases x 17 minutes = 1394 minutes x \$37.00 = \$30,821.00</p>	<p>to-use consent platform visible to all interdisciplinary staff</p> <p>Improved nursing satisfaction with easier workflow than current paper consent process</p>	
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<p>Cost Benefit Analysis</p>	<p>CBA = $\frac{\text{Program Benefits } (\\$30821.00)}{\text{Program Costs } (\\$26668.00)} =$</p> <p>For every dollar spent there will be “\$1.16” cost avoidance</p>
<p>Return on Investment</p>	<p>ROI = $\frac{\text{Program Benefits } (\\$30821) - \text{Costs of Program } (\\$26668)}{\text{Program Costs } (\\$26668)} \times 100$</p> <p>15% return on investment</p>

- Secure support and resource to implement action plan (Step 13)
 - Primary stakeholders to secure resource support and financial funding are:
 - Director of Ancillary Applications
 - Chief Nursing Informatics Officer
 - Chief Medical Informatics Officer
 - Further details on stakeholder and resource support of above roles can be found on Table 3.

- Implement action plan (Step 14):
 - See Table 4 on timeline of action plan

- Evaluate outcomes (Step 15)
 - Baseline data: # consent errors 4 months prior to go-live (May 2021)
 - Collection source: iReport system
 - Evaluation data with timeline: # consent errors every month for 4 months post go-live at systemwide level
 - Process outcomes: Trend of number of eConsents used at a system-wide level
- Report outcomes to stakeholders (Step 16)
 - Continue to track iReports related to consent errors and barriers captured during eConsent process
 - Track key performance indicators of progress with eConsents
 - Check-ins with main communication groups noted every 4-6 months on eConsent progress. Utilize opportunity to also report out any key findings.
 - Design learning, operational and clinical changes as practice improvements in response to end-user and key performance indicator results/feedback.
 - Re-emphasize any technical support or escalation needs surrounding eConsents or defunct technical equipment attached to eConsent
 - Consider transforming other paper consents utilized to eConsents
- Identify next steps (Step 17)
 - Possible next steps include but are not limited to:
 - Expand additional consents beyond surgical and blood
 - Inquire feasibility of sending eConsents prior to surgery via patient portal
- Disseminate findings (Step 18)

- Potential conferences and publications to disseminate findings are
 - Conferences
 - American Nursing Informatics Association
 - UC San Diego Annual Nursing Inquiry and Innovation Conference
 - Healthcare Information and Management Systems (HIMSS) Conference
 - Journals
 - American Nursing Informatics Association Journal
 - Online Journal of Nursing Informatics

VII. Evaluation Plan

Data Management

Given that the benchmarking and evaluation data will not require the need for patient-identifiable data, all data of consent errors will be evaluated within the project site's iReport data system. This system captures reportable events that have been known to cause patient harm. Further quantitative data evaluation is to remain on the organization's secure system, with no patient-identifiable data when evaluating results.

Sustainability Plan

During the 4-month period of the system-wide launch, several factors are to be evaluated to determine sustainability efforts. For instance, if nurse managers find consistent usage of eConsent tablets, sustainability efforts will focus on the combination of either purchasing more tablets to meet the increased demand of eConsents, or replacement of tablets that have damage. Additional sustainability efforts to ensure eConsent usage is the transformation of the most

commonly used paper consents, beyond surgical or blood, and transform into eConsents with the approval by the organization's risk and quality management. Additionally, further policy and procedures are to be amended to also reflect the usage of eConsents and back-up business continuity processes in the event the eConsent platform incurs downtime. Finally, efforts to bring the consent form earlier in the surgical plan to the patient via patient portals on any desktop or mobile device at the patient's convenience is an additional point of consideration to ensure the expansion of eConsent usage for the organization.

Evaluation of Intervention & Outcomes

eConsent data will be evaluated based on the combination of process outcomes as well as primary outcomes. Process outcomes are to focus on the usage of eConsents amongst total number of providers. Patient primary outcomes are focused on the stated benchmark data of reducing number of consent errors.

Cost/Benefit Analysis

The program at a system-wide level will ultimately provide favorable cost and benefit results if this program were to run for at least a year. At an estimate, for every dollar spend there will be a "\$1.16" cost avoidance. Additionally, there is estimated to be a 15% return on investment if about 49 consent errors or less is achieved between May 2021 to May 2022 in comparison.

Although the initial start-up cost of purchasing tablets is high, the sustainability cost is minimum. In comparison, paper consents must be purchased in bulk in continuity and requires labor time to upload all documents. When comparing initial purchasing costs of the technology against continuous labor and materials cost of paper consents, the utilizing of eConsents still favored to be less expensive. Initial financial costs also include trackers to prevent the loss of the

tablets and further cost. Additionally, all initial purchasing of tablets came with the 3-year AppleCare plan in the event of an identified broken tablets. To note, after the first year of the program, the only recurring cost indicated is the eConsent software whereas paper consents requires a significantly higher recurring cost due to the order of paper forms and hiring of physical labor.

Primary cost avoidance in the analysis took into account the delay time avoided for every consent error caught. On average, every consent error led to a 17-minute delay to the operating room (Reeves et al., 2020). The average operating room cost per minute in California is estimated to about \$37.00 dollars (Childers & Maggard-Gibbons, 2018). Although cost estimations are based on a full year of the program run, the number of consent errors prevented is based on the 97 consent errors captured between May 2020 to May 2021 with a 50% reduction post-intervention; a goal of about 49 consent errors avoided ideally between May 2021 to May 2022.

Non-financial benefits include improved patient experience as the consent is delivered to meet patient needs such as larger font or ergonomic ability to sign with simply a finger. Given that the electronic consent is merged automatically with the patient's chart automatically, nursing satisfaction with this easier workflow of finding the paper consent must be taken into account as well. Intangible benefits ultimately include decreased liability costs related to incorrect surgeries stemming from consent errors, streamlined processes from outpatient signed consents to the inpatient setting, and the consolidation of such forms electronically to prevent lost of the legal form.

Table 4 lists further details of costs associated with the implementation of eConsents on ancillary platforms to 49 departments and 62 tablets throughout the inpatient setting of the organization.

VIII. Implementation of Evidence-Based Intervention

IRB excusal was obtained from both the University of California: San Diego Health on February 18, 2021 and the University of San Diego on March 25, 2021. Project began implementation on May 4th, 2021 through the acute care UC San Diego Health system. Support to proceed with evidence-based intervention was also obtained by the directors both in the Information Systems department as well as Nurse Executive Team. Financial resource allocation was obtained by the Director of Ancillary Applications as well.

Key nursing shared governance committees as well as executive councils were presented at prior to the May 2021 go-live. Education was provided key stakeholder groups and training was also posted on the organization's page for sustainability. All training documents were reviewed by the organization's EMR principal trainers and analysts to ensure content was valid as well as concise for end-users to understand. Primary stakeholder team met every form March to May 2021 to ensure all build content, functionality, testing, education in the form of Powerpoints and tutorial vidoes, and appropriate roll-out was planned accordingly at an inter-disciplinary manner. See Figure 1 on example of education materials provided.

Figure 1

Nursing-Facing Education Materials via PowerPoint and Video Tutorial



Epic Welcome

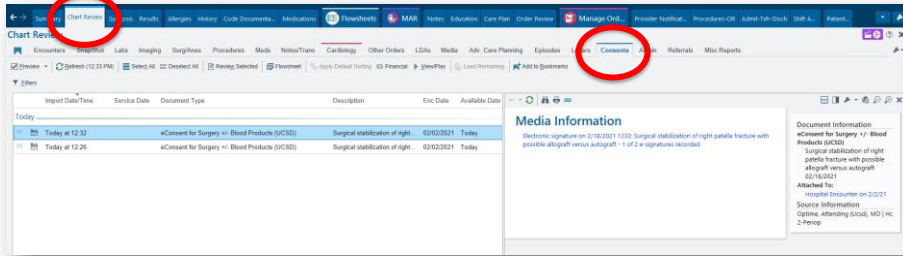
Epic Welcome App

- Providers will generate consent forms prior to seeing the patient
- iPads with the Epic Welcome App will be provided to your units and are dedicated to **eConsent signing ONLY!** *Do not use this iPad for anything else!*
- Providers will take the iPad on your unit and utilize the app to obtain the patient signature (nursing has minimal role other than to obtain to the iPad and give to provider). Only providers can access the Epic Welcome app.
- The eConsent form is then uploaded to the patients chart

Easier for the patient to sign!
Easier for RNs to find the form in the chart!

UC San Diego Health

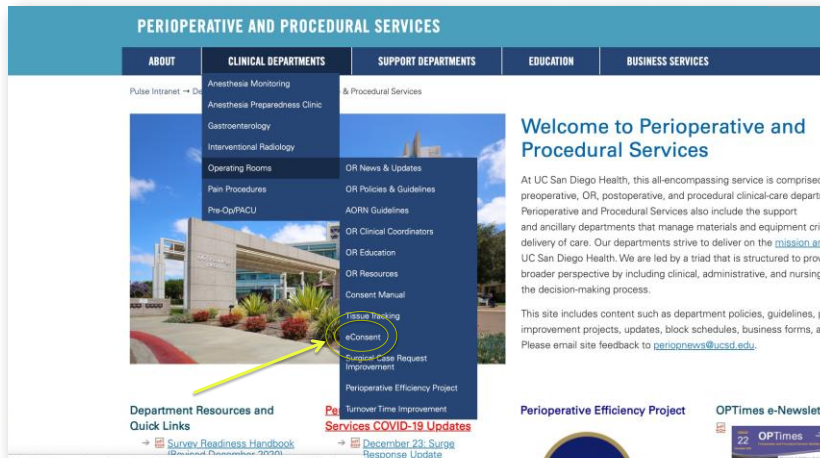
eConsents in Hyperspace (Chart Review Activity)



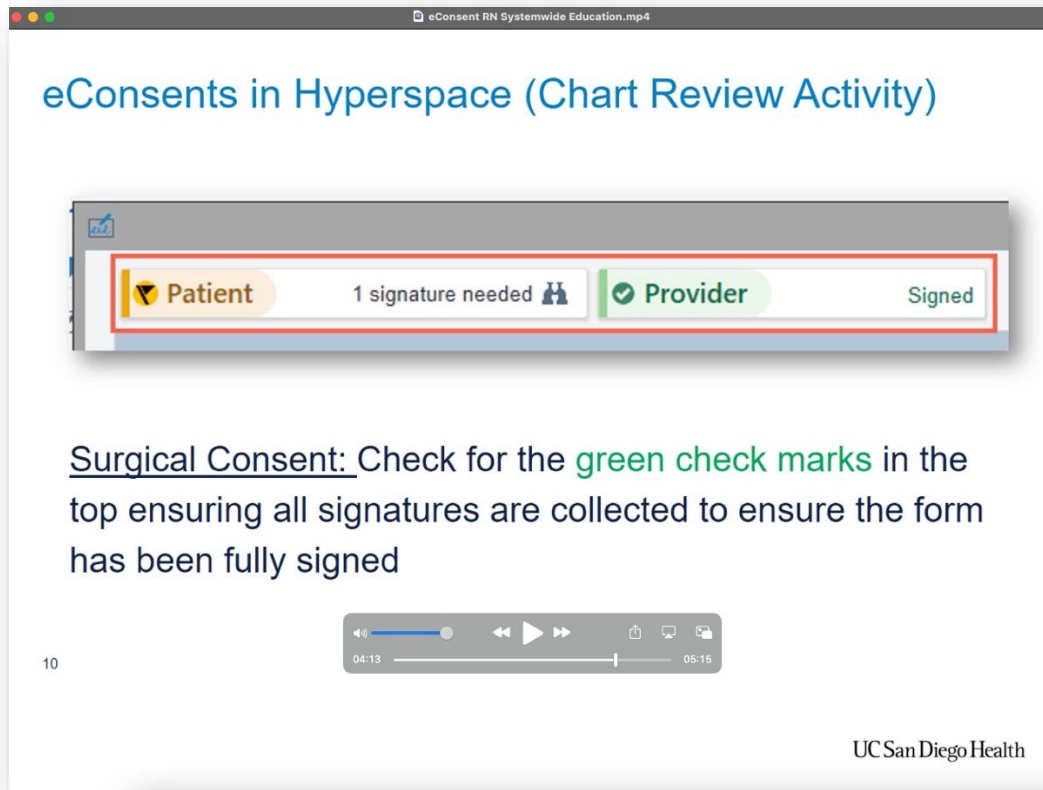
Once the consent form is initiated by the provider, RNs can find the eConsent form in Chart Review

3

Pulse -> Search Periop -> Clinical Departments -> Operating Rooms -> eConsent



6



eConsents in Hyperspace (Chart Review Activity)

Patient 1 signature needed Provider Signed

Surgical Consent: Check for the **green check marks** in the top ensuring all signatures are collected to ensure the form has been fully signed

10

04:13 05:16

UC San Diego Health

Given the approval to purchase a total of 62 tablets specific to eConsents only, a go-live team was established to roll-out and provide an additional in-service regarding the tablets in early May 2021. A go-live team consisting of analysts and EMR trainers provided the tablets and in-service across all acute care departments at both La Jolla and Hillcrest. See Table 4 on implementation tasks via timeline format. See Figure 2 on go-live schedule, units where tablets were disseminated to, and assigned trainer. Figure 3 explicates the ‘Train-the-Trainer’ Playbook used to prepare the go-live team when launching eConsents on the inpatient units.

Figure 2
Go-Live Team Schedule

NURSING DEPARTMENT E-CONSENT INSERVICE TRAINING SCHEDULE & LAUNCH (TUESDAY MAY 4)							
LA JOLLA - STAGING AREA: Conference Room 6-702 (Lead: Kyle)							
NURSING DEPARTMENT	1000-1015	1015-1030	1030-1045	1045-1100	iPad Count	RN MANAGER	NOTES
JACOBS							
JM 3F-ICU	Kyle				1	Dawn Carroll	
JM 3G-ICU	Gary				1	Chris Clapp/Matt Redila	
JM 3H-ICU	Karuna				2	Chris Clapp/Matt Redila	
JM 4F		Kyle			1	Laura Vento	
JM 4G		Gary			1	Laura Vento	
JM 4H		Karuna			2	Laura Vento	
JM 5F			Kyle		1	Karen Armenion	
JM 5G			Gary		1	Karen Armenion	
JM 5H			Karuna		2	Karen Armenion	
JM 6F				Kyle	1	Melissa Callahan	
JM 6G				Gary	1	Melissa Callahan	
JM 6H				Karuna	1	Melissa Callahan	
JM 8-NICU	Kim				4	Jackie Iseri	
SCVC							
SC 3A-ICU	Kris				2	Laura Chechel	
SC 3B-PCU		Kris			3	Kate Boughanem	1 iPad for Provider workroom
SC 4A-PCU			Kris		2	Lea Bruget	
SC 4B-PCU					2	Lea Bruget	
THORNTON							
TH 2-CVICU	Britt				2	Laura Chechel	
TH 2-WEST		Britt			2	Melissa Deming	
TH 2-EAST		Kim			2	Tiare Gonzales	
TH 3-EAST			Britt		2	Aldrin Poblete	
TH 3-WEST			Kim		2	Aldrine Poblete	
ED							
TH ED				Kris & Kim	3	Wilmar Flores	Give to HUSCS
HILLCREST - STAGING AREA: Conference Room 9-309 (Lead: Andrew)							
NURSING DEPARTMENT	1000-1015	1015-1030	1030-1045	1045-1100	iPad Count	RN MANAGER	NOTES
HILLCREST							
HC 11-EAST	Andrew				1	Eleanor Yoshisaki-Yusi	
HC 11-WEST	Roman				1	Eleanor Yoshisaki-Yusi	
HC 10-CCU	Adam/Jud				1	April Wateska	
HC 10-EAST	Dave				1	Dante Segundo	
HC 9-EAST		Andrew			1	Maria Barreto	
HC 9-MICU		Roman			1	Dorothy Macavinta	
HC 8-EAST		Adam/Jud			1	Monica Neslage	
HC 8-WEST		Dave			1	Monica Neslage	
HC 7-EAST SBH			Andrew		1	Debbie Crutchfield	
HC 7-WEST			Roman		1	Dorothy Macavinta	
HC 6-EAST			Adam/Jud		1	B Lizarraga	
HC 6-WEST			Dave		1	B Lizarraga	
HC 5-WEST				Jud/Adam	1	Trisha Weers	
HC 2-ISCC (NICU)				Roman	1	Jackie Iseri	
HC 2-NURSERY					1	Jocelyn Angel	
HC 2-OBSTETRICS				Dave	1	Jocelyn Angel	
HC 2-SICU	Mick				1	Juana Burkhart	
NEAR COPY CENTER							
HC NBMU		Mick			2	Laura Earp	
HC ED							
ED				Mick & Andrew	2	Maranda Bradshaw	Give to HUSCS

Instructions	Trainers to huddle nurses who are available day of in-service (ideally RN manager there for in-service)
	Trainers to drop off iPad to RN manager or next lead (RN Manager to decide location of iPad most accessible for RN & providers)
In-Service Details	Review iPad technical details: only one app - Epic Welcome
	Ensure iPad returns to identified location after use - RN manager will decide location (ex. like MARTTIs!)
	Only consent on Epic Welcome app will be surgical and blood consent
	For now, only providers can utilize the app to scan the patient's QR code to access the eConsent
	Witness signature (RN) is not needed for most eConsent EXCEPT for patients who are NOT signing for themselves (ex. pediatric p
	eConsent will auto-upload to patient's chart (remind RN to go to Chart Review)
CLEANING	Call 3-Help if not working
	Watch training video on Pulse/e-mail if haven't already
	The end
GENERAL TEAMS CHAT WILL BE MADE	
	Specific Questions (Teams message the following people):
Workflow/Compliance/Provider Questions	Dr Reeves
Welcome Questions	Kyle Ficklin-Badaloni
On-Call Security	Marco Valencia
Pre-Launch Training Plan	
Provider Training	Nursing Training (DONE)
Send out training materials via e-mail	Send out training materials via e-mail
Materials:	Materials:
E-mail Dr. Reeves	eConsent Overview Video (Revised)
	Welcome Tip Sheet
	Dr. Reeves Witness Signature Video
	Pulse Page
SEND OUT MID APRIL	SEND OUT E-MAIL MID APRIL
Pre-Work	
	Lilian to coordinate with RN managers of units estimate time of arrival of trainers prior to launch week
	Lilian to provide RN managers iPad counts + Centrak #s to managers
	Pre-Launch Trainer Review Call
	Give KBs to 3-HELP desk + scripting

Figure 3*Train-the-Trainer Playbook*

Train the Trainer Playbook
Wednesday, April 28, 2021. 0900-0945

1. Meeting areas:
 - a. La Jolla Team – meet in lobby near cafeteria @0945
 - b. Hillcrest Team – meet in cafeteria @0945
 - c. Andrew to meet up with Kyle at TCD prior 0830 ish (DON'T FORGET FLO'S TIP SHEETS!)
2. Review iPad cart carriers at each site
 - a. HC – Andrew
 - b. LJ - Lillian
3. Resting area:
 - a. LJ – 6-702 (Conference Room)
 - b. HC – Inpatient Tower 9-309
4. Review training locations assigned (send via ~~Showpoint~~)
 - a. Point out who the lead is at each site
 - i. LJ – Lillian (teams)
 - ii. HC – Andrew (teams)
 - iii. Teams group chat for general questions:
 - iv. Teams message specific questions:
 1. Any workflow/compliance/provider questions – Dr. Reeves (teams)
 2. Welcome questions – Kyle (teams)
 3. On-Call Security - Marco Valencia (teams)
 - b. Make note of # of iPads for per unit AND make sure you are checking the labeled named on the back of the iPad
5. Review excel of all iPad numbers + nursing manager contact
6. **Grab as many nurses possible for in-service (find the charge nurse and/or manager)**
 - a. In-service talking points:
 - i. Provide tip sheets
 - ii. Review iPad technical details: only one app - Epic Welcome
 - iii. Ensure iPad returns to identified location after use - RN manager will decide location (ex. like MARTTis!)
 - iv. Only consent on Epic Welcome app will be surgical and blood consent
 - v. For now, only providers can utilize the app to scan the patient's QR code to access the eConsent
 - vi. Witness signature (RN) is not needed for most eConsent EXCEPT for patients who are NOT signing for themselves (ex. pediatric patients, altered level of consciousness)
 - vii. eConsents are not mandatory – can still use paper consents
 - viii. eConsent will auto-upload to patient's chart (remind RN to go to Chart Review)
 - ix. **CLEANING**
 - x. Call 3-Help if not working
 - xi. Watch training video on Pulse/e-mail if haven't already
7. Kyle to show Epic Welcome app during train-the-trainer
8. Lillian to show Chart Review consents tab
9. 3-HELP made aware already + KBs updated

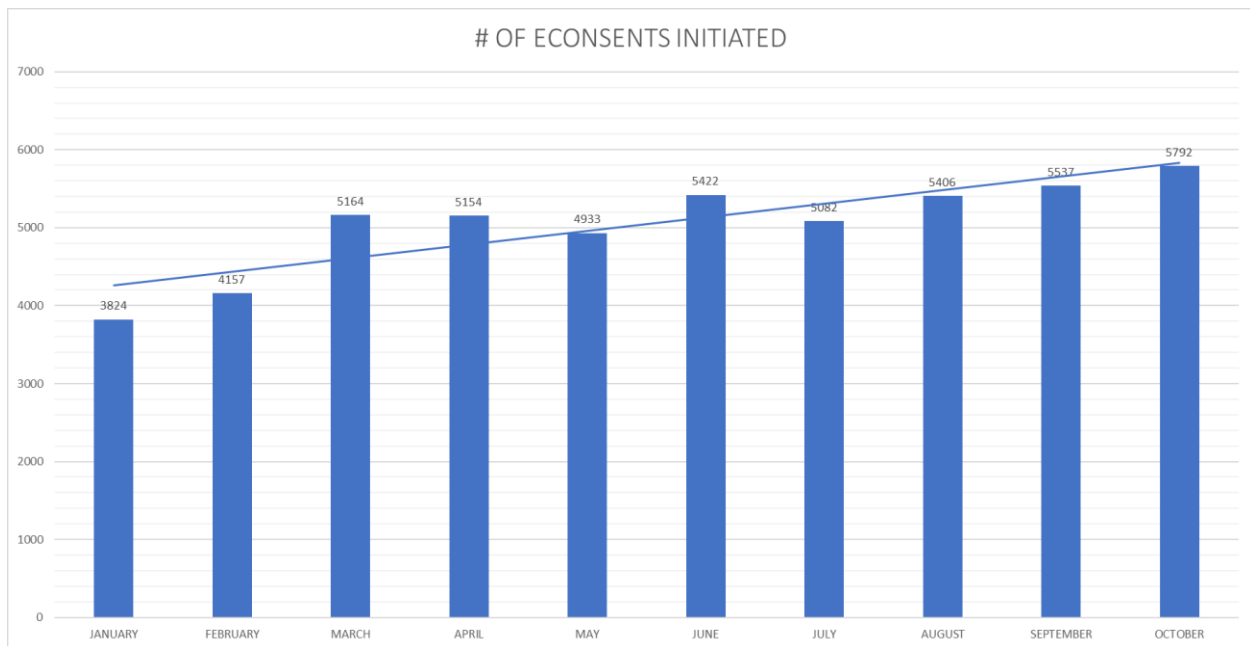
IX. Evaluation Results and Sustainability Plans

When reviewing the data, the number of submitted iReported consent issues as well as the number of patient days per month were used to calculate a rate of total number of eConsents per 1000 patient days. Data was gathered from the organization’s incident reporting system.

The identified process outcome of indicating an increase in eConsent usage was achieved after the May 2021 launch. An upwards trend was noted between May 2021 to October 2021. The change in percentage between October 2021 and the initial May 2021 eConsent launch in the number of eConsents completed indicated an increase of eConsent usage by 17% (Figure 4). As noted, eConsents were utilized in the outpatient setting but by non-ergonomic means of simply a mouse and the computer on wheels. When launched in the inpatient setting, the usage of the wireless ancillary device to capture such information was new and evidence-based for the organization.

Figure 4

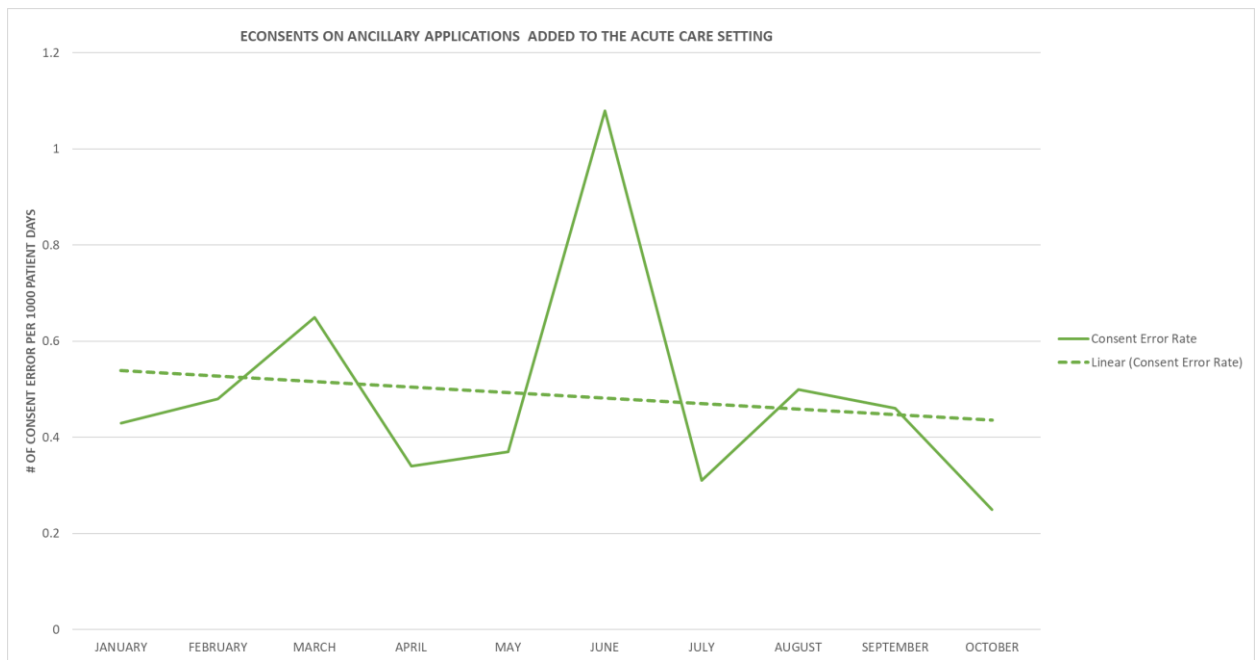
Number of eConsent Initiated between January 2021 to October 2021



The primary outcome of reducing the eConsent error rate per patient day indicated a downward trend from the May 2021 launch to October 2021. The change in percentage of consent error ratio from May 2021 and 5 months post-launch shows an overall 42% decrease in eConsent errors per patient days (Figure 5). Additionally, see Figure 6 on eConsent breakdown of consent errors captured by type.

Figure 5

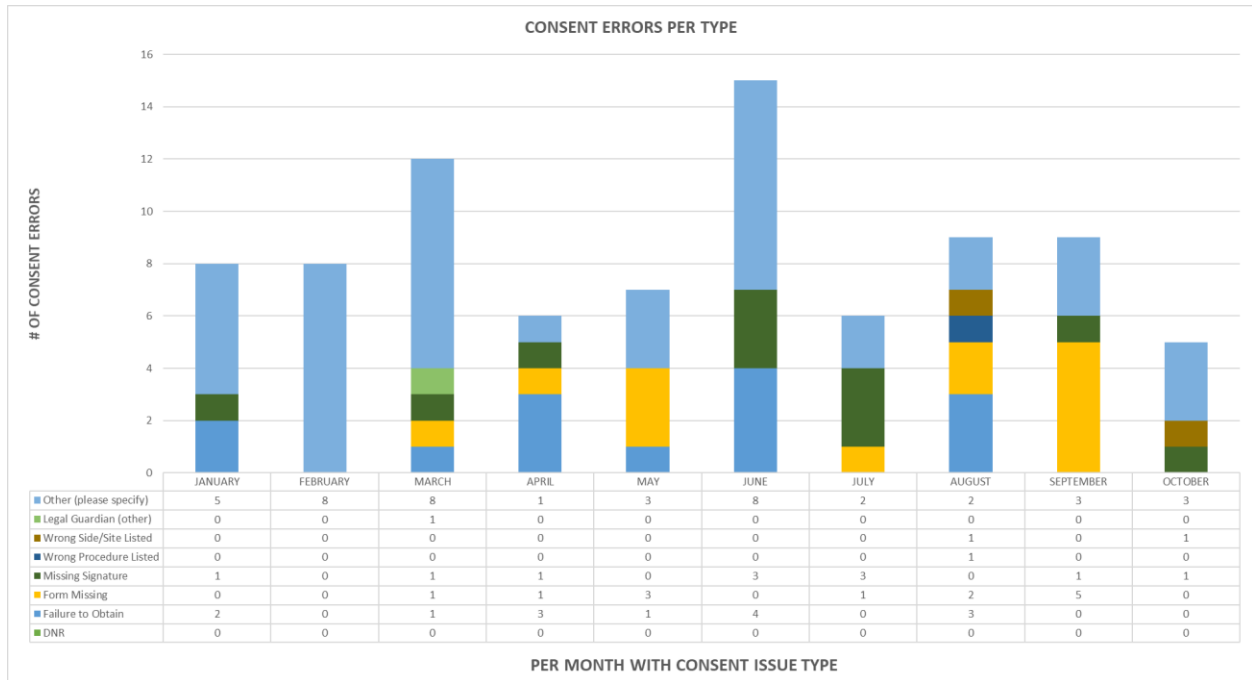
eConsent Error Rate Trend



Two-tailed independent samples t-test was not significant based on an alpha value of .05, $t(8) = -0.42, p = .686$.

Figure 6

Consent Error Type Breakdown



It is important to note that between January 2021 to May 2021 there was a total of 41 consent errors captured in the incident reporting system. Post system-wide launch between June 2021 to October 2021 actually indicated an increase in consent errors to 50 (Figure 7).

Figure 7

Compiled consent error breakdown captured by incidence reporting system against patient days

	MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	SUBTOTAL	CHANGE IN % FROM MAY 2021 TO OCTOBER 2021
	<i>Issue Type</i>												
	<i>DNR</i>	0	0	0	0	0	0	0	0	0	0	0	0
	<i>Failure to Obtain</i>	2	0	1	3	1	4	0	3	0	0	14	
	<i>Form Missing</i>	0	0	1	1	3	0	1	2	5	0	13	
	<i>Missing Signature</i>	1	0	1	1	0	3	3	0	1	1	11	
	<i>Wrong Procedure Listed</i>	0	0	0	0	0	0	0	1	0	0	1	
	<i>Wrong Side/Site Listed</i>	0	0	0	0	0	0	0	1	0	1	2	
	<i>Legal Guardian (other)</i>	0	0	1	0	0	0	0	0	0	0	1	
	<i>Other (please specify)</i>	5	8	8	1	3	8	2	2	3	3	43	
	# OF IREPORTED CONSENT ISSUES	8	8	12	6	7	20	6	10	9	5	85	
	# OF PATIENT DAYS	18605	16667	18462	17647	18919	18519	19355	20000	19565	20000		
PRIMARY	TOTAL # OF CONSENT ISSUES IREPORTED PER 1000 PATIENT DAYS	0.43	0.48	0.65	0.34	0.37	1.08	0.31	0.5	0.46	0.25		-42%
PROCESS	# OF EONSENTERS INITIATED	3824	4157	5164	5154	4933	5422	5082	5406	5537	5792		17%

However, the number of patient days between this post-launch in total was about 7200 more days than pre-launch, therefore indicating higher census but with a lower consent error ratio. This decrease comparing 5 months pre-intervention versus 5 months post-intervention and the associated result of the two-tailed independent samples t-test was not significant based on an alpha value of .05, $t(8) = -0.42$, $p = .686$.

Future opportunities do exist now that the eConsent platform has launched and transitioned to ancillary applications easily available on mobile devices. Sustainability and future endeavors include expanding eConsents to the patient portal system. By doing so would allow for consents to not only be provided to patient's for record-keeping but to review consent content and sign as necessary easily. When information system resources allows, expansion to additional electronic consents based on the most ordered paper consents in Table 2.

X. Conclusions Including Cost Benefit Analysis

In conclusion, the slight decrease in the consent error rate per patient day is indicative of an evidence-based process with potential growing success in the inpatient setting. Overall, although results are not statistically significant, clinical significance can be analyzed given the decreasing trend of consent error rates against the number of patient days as well as the increasing use of electronic consents.

Around October 2021, the project did about 50 consent errors, over the original analyzed cost goal of 49 or less from May 2021-May 2022. To note, only two consents in the inpatient setting were converted to electronic use although the organization has over 200 consent forms that are potential for electronic conversion. Although cost-benefit monetary goals were not met, continuous intangible benefits can be inferred with a streamlined process for both patient and nursing staff who interact with the consent process frequently. The increased usage of eConsents,

although only two consents in the inpatient were converted, also posed as fruitful for the continued and growing use of eConsents by providers.

XI. Implications for Clinical Practice

With the initial inpatient system-wide launch of eConsents on tablets, several environment and technical implications are critical when considering the operational and clinical launch of this project.

This project was launched in the inpatient setting at a system-wide level. Prior to the May 2021 launch, ambulatory and outpatient settings utilized eConsents without the usage of tablet or ancillary applications. Instead, ambulatory settings utilized pressure-sensitive electronic pads wired to the computer on wheels that posed some ergonomic difficulties but ultimately the success of usage and storage of the consent within the patient's chart further emphasized the need in the inpatient setting. Being said, overall data, although without statistical significance, does indicate some inpatient clinical significance with the increased number of eConsents launched as well as overall consent error rate reduction.

Initial launch of eConsents in the inpatient setting also proved difficult given the technical build for analysts to create the electronic form. Although sustainability efforts to expand electronic consents to other consent forms is clearly indicated, resource and time allocation to the transformation of such forms should be considered from an operational lens. Additionally, nurse informaticists must work closely with the analysts to ensure not only to prioritize which forms are to be transformed but which end-users, additional training, and any proxy or legal implications are associated with new electronic forms.

Given that the launch of this project was essential with an advanced provider informaticist partner, it is also worth to note that such a change in behavioral processes, although

with quality and clinical outcomes, requires strategic planning to ensure all nurses and advanced providers are reached and educated to. Although this project was launched in May, and given that the clinical site is a teaching facility, some strategic consideration to push the launch date to June may be beneficial to capture all new oncoming residents who require the training as well.

The launch of eConsents on tablets in May 2021 was a great milestone in the transformation of such paper documents to a secure and electronic pathway, however, environmental considerations impacted full usage. For instance, the influx of nursing shortages and usage of traveler nursing staff, although eConsents was added to new employee training, in combination of eConsents not as a requirement in the inpatient setting, therefore in some cases made the usage of paper consents easier to grab and use at the bedside. Data indicating that although eConsent usage did increase slightly, the implications of increasing patient census as evidenced by the increasing number of patient days in combination with new residents, temporary nurses, and lack of policy requirement of eConsents supports the slight improvements in both process and primary outcomes.

Overall, the progressing positive trends and the implementation of the evidence-based project as a whole is an indicator to the importance of nursing informatics to help launch information system owned platforms in a manner that marries well with nursing and patient safety philosophy in order to ensure quality outcomes. Without the implementation of an evidence-based frame, coordination with major stakeholders, and identification of strategic clinical and operational processes, the continued use of this intervention would not be indicated in the data provided. Such a project is an exemplar of the importance of nursing informatics to not just simply launch innovative platforms but to collaborate and design initial and sustainable processes that meet frontline needs in an ergonomic fashion.

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Appendix C

Poster with Letter of Conference Acceptance

eConsent Forms on Ancillary Applications with Electronic Medical Record Integration (EMR): Reducing Error Consent Rates

Lilian Chan, MSN, RN, PCCN-K – DNP Student: Nursing Informatics and Data Science
Faculty Advisor: Jud Simonds DNP, RN, NE-BC, RN-BC

Background

Evidence for Problem

Evaluation Results

Consent errors are defined as issues with quality of the documentation, misplacement, or illegibility.

Nursing is quintessential to ensure at all stages of the perioperative continuum that such a form is correct and transferred appropriately before beginning the invasive procedure consented to.

Internal: Between May 2020 and May 2021, the University of California – San Diego (UCSD) has had 97 consent errors. The inpatient setting largely does not use electronic format for any forms.

External: Studies show that paper-based handwritten surgical consent forms have an error rate of up to 50%. Allows for:

1. Incorrect surgeries (malpractice)
2. Financial loss due to aborted or delayed surgical cases

Primary: Consent error/1000 patient days rate post-intervention between January 2021 to October 2021 decreased by 42%. Independent t-test (alpha of 0.5, t(8) = -.42, p = .686)

Process: eConsents initiated between May 2021 to October 2021 increased by 17%

Purpose

Evidence-Based Intervention

The purpose of this project is to reduce consent error rates with the utilization of ancillary applications to capture electronic surgical and blood consents also made available in the patient's electronic medical record in the inpatient setting.

Apply eConsents (blood & surgical) with ancillary applications on tablets integrated with the patient's electronic medical record.

Framework/EBP Model

Conclusions

Johns Hopkins Evidence-Based Practice Model

eConsents have currently proven worthy for surgical consents and in the reduction of consent error. Positive results with only 2 out of 200 inpatient consents converted.

Considerations should be made to expand eConsents to other types of consent forms.

Assessment on policies, procedures, additional educational venues, and operational compliance on mandating usage of eConsents more.

Project Plan Process

Cost-Benefit Analysis

Implications for Clinical Practice

PRACTICE QUESTION

September 2020 - October 2020
Define EBP Question

Discuss scope with faculty advisor/Director of Nursing Informatics

EVIDENCE

November 2020
Conduct internal and external evidence

Appraise literature

Develop evidence-based recommendations

TRANSLATION

December 2020
• Obtain IRB review, IAD approval, identify pilot unit

January 2021 - February 2021
• Create and disseminate, Define key performance indicators, Create training materials

March 2021 - April 2021
• Launch of pilot units (Surg ICU & A&S, Veterans Hospital)

May 2021
• Assess unit readiness and gather feedback, address pilot unit

May 2021 - October 2021
• EMR follow-up, KPI tracking, End user feedback

IPads needed for an estimated (49) inpatient departments = 52 IPads

Trackers placed tablets for loss prevention

Annual software cost

Cost avoidance of delayed surgeries related to consent errors prior to incision by 50% of baseline year prior to launch if program to run for a full year = 49 errors avoided

Prevents resource or financial cost related to delayed or aborted surgeries due to consent issues.

Ensures that legal document is addressed, completed appropriately, and prevents further issues related to possible provider malpractice with mishandled consent documents.

Key role of nurse informaticist to ensure design of IS-owned platforms meet operation and clinical workflows and safe patient quality outcomes.

**Timeline designed to match Johns Hopkins Model

Saturday, April 2, 2022 at 10:56:30 Pacific Daylight Time

Subject: [Urgent Response Requested] You abstract has been accepted for E-PODIUM Presentation
Date: Friday, April 1, 2022 at 10:57:47 PM Pacific Daylight Time
From: Cuevas, Michelle
To: Cuevas, Michelle
CC: Nethercot, Darryl
Attachments: image.png, Outlook-bq1kqmcfc.png



Your abstract has been accepted for **E-Podium** presentation at the **15th Annual UCSD EBP/Research E-Conference Day** set to be held on **Friday, June 24th, 2022, from 8am-4pm.**

Please reply to this email with your acceptance of this invitation by **Monday, April 4th, 2022.**

1st draft of your podium presentation is due Monday, April 11th, 2022.

Final poster submission will be due by Thursday, May 5th, 2022.

Please send your final poster to ucsdnursingresearchconference@health.ucsd.edu

All podium presenters will also be responsible for submitting an 8min video recording of their presentation, due no later than Friday, May 27th.

Presentations templates and instructions on how to upload your video presentation will be emailed to you next week after receiving confirmation of your acceptance.

Please see below for all important dates to note.

Appendix D

PowerPoint Stakeholder Presentation

Mock Stakeholder Presentation



UNIVERSITY
of San Diego®
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betsy and Bob Reyster Institute for
Nursing Research, Advanced Practice, and Simulation


eConsent Forms on Ancillary Applications with Electronic Medical Record Integration – Reducing Consent Error Rates


Lilian Canamo, MSN, RN, PCCN
Faculty Advisor: Jud Simonds, DNP, RN, NE-BC, RN-BC

DNP Student – Nursing Informatics & Data Science
University of San Diego

Background and Significance

- Studies show that **paper-based handwritten forms have an error rate of up to 50%**. Consent errors are defined as issues with the quality of the documentation, misplacement, or illegibility (Reeves et al., 2020).
- Consent errors are not merely documentation errors but **patient safety pitfalls** that allow **incorrect surgeries** or a **financial loss** due to aborted or delayed interventional cases (Ledercq et al., 2010; St John et al., 2017).





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Driving Forces for Project

Internal Evidence:
97 report consent error issues from May 2020 to May 2021

External Evidence:
Several studies indicating electronic delivery of consents has proven to be successful in reducing consent errors that are NOT being practiced at UC San Diego Health



PICO(T) Question

PICOT Question:

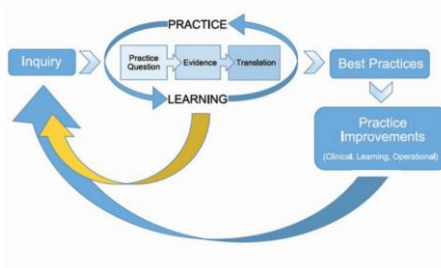
- P:** In patients admitted to UC San Diego Health (UCSD Health) requiring surgical procedures
- I:** Does utilizing surgical electronic consent (eConsent) forms on informatics applications
- C:** Compared with traditional paper consent forms
- O:** Result in a decrease in erroneous consents
- T:** Over 5 months (May 2021 to October 2021)



Framework/EBP Model

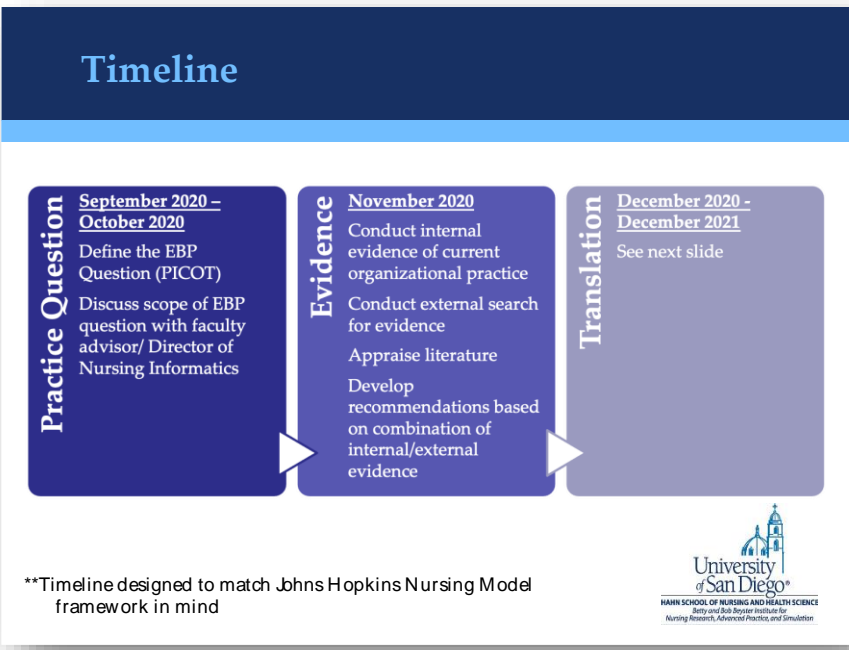
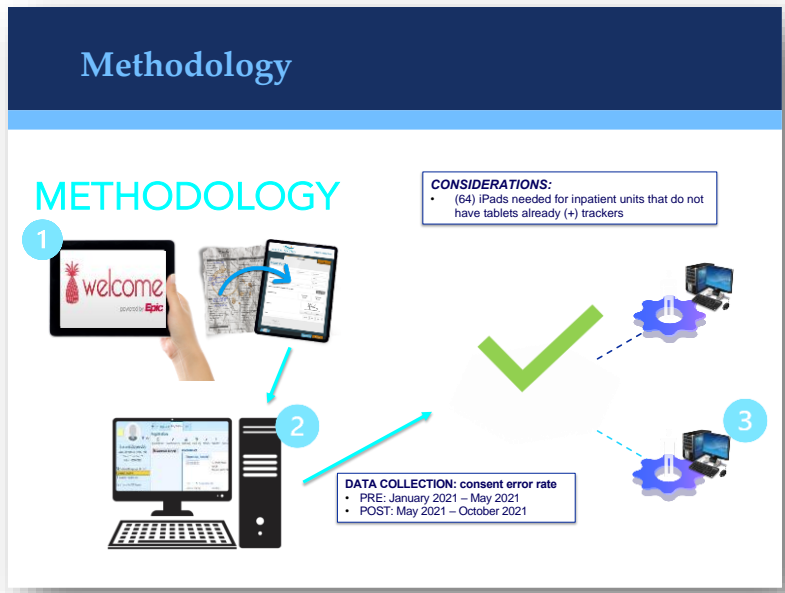
Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) Model

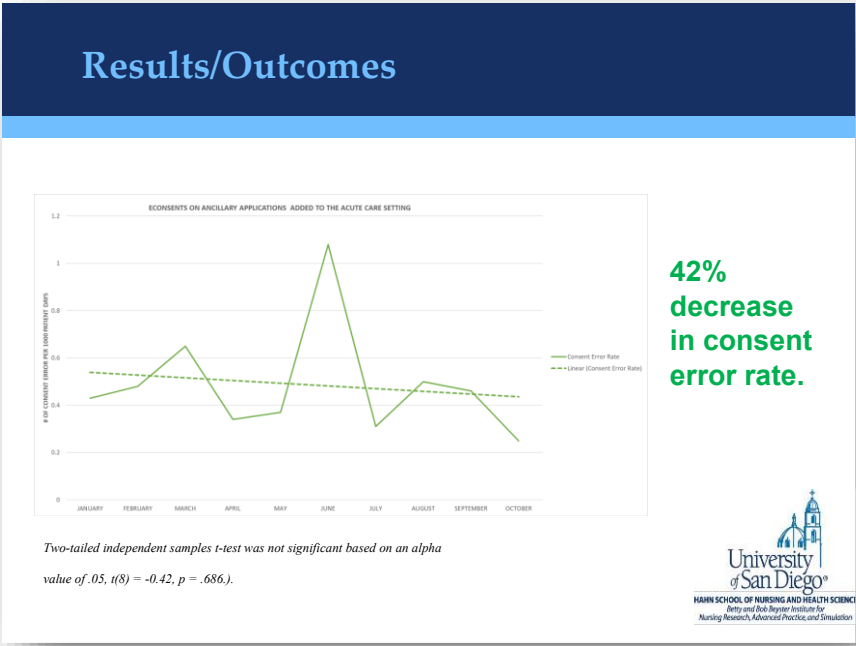
- Responds to any fluctuations or new questions that may arise in the project's process.
- The JHNEBP model is an open-system that ensures that if new best practices do arise or further inquiry of optimization of the evidence-based practice that **modifications can be made with the guidance and clarity of the model** (Dang et al., 2018).



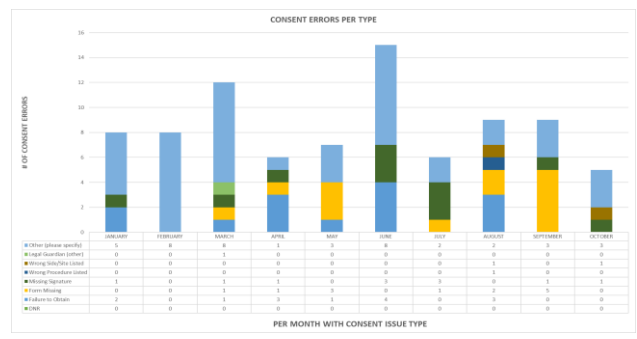
Synopsis of the Evidence

Author(s) & Article Title	Evidence Ranking (use Melynk pyramid)	Summary of Evidence – key bullet points
Chen et al., 2018 Replacing Paper Informed Consent with Electronic Informed Consent for Research in Academic Medical Centers: A Scoping Review.	Level 1	eConsents support federal guidance Evidence of higher patient comprehension and workflow processes
Perrenoud et al., 2015 The effectiveness of health literacy interventions on the informed consent process of health care users: a systematic review protocol.	Level 1	Combination of improving readability on eConsents led to better understanding of procedure due to simplifying and delivery of documents
U.S. Department of Health and Human Services, 2016 Use of Electronic Informed Consent: Questions and Answers	Level 1	Explicit criteria must be met when designing eConsents: -High security when obtaining patient biometrics (ex. signature) -Recorded date and time of signatures -User should be able to navigate form forward and backwards -Must be archived appropriately
Bethune et al., 2018 eConsent: approaching surgical consent with mobile technology.	Level 2	Mobile technology used to obtain consent Information provided in eConsent format ensured a truly informed patient decision
Golembiewski et al., 2021 An Electronic Tool to Support Patient-Centered Broad Consent: A Multi-Arm Randomized Clinical Trial in Family Medicine	Level 2	Helps to standardize information presented to patient in eConsent format Tablet used
Hausen et al., 2017 Utilization of a Smartphone Platform for Electronic Informed Consent in Acute Stroke Trials.	Level 2	eConsents streamlined the consenting process and was useful in emergent surgical cases eConsent on smartphone/handheld device with freehand signature
Reeves et al., 2020 Association of Electronic Surgical Consent Forms With Entry Error Rates.	Level 3	EMR integration is essential Necessary to reduce entry error consent rates (1% with electronic methods vs 32% with paper consent)
Chong et al., 2018 Reducing the number of invalid surgical consents in the day surgery unit.	Level 3	Statistically significant decrease in rejected consents Necessary to include nursing in design process and workflow of e-consent

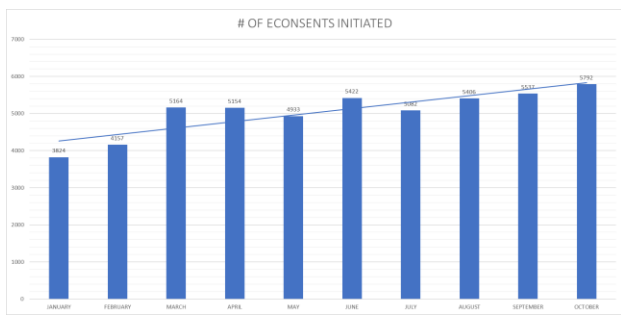




Results/Outcomes



Results/Outcomes



Cost-Benefit & ROI

$$\text{CBA} = \frac{\text{Program Benefits } (\$30821.00)}{\text{Program Costs } (\$26668.00)} =$$

For every dollar spent there will be "\$1.16" cost avoidance

$$\text{ROI} = \frac{\text{Program Benefits } (\$30821) - \text{Costs of Program } (\$26668)}{\text{Program Costs } (\$26668)} \times 100$$

15% return on investment

**Calculations based on:

- **Program cost** – All training costs, analyst & informaticist time, new technology purchases, software purchases
- **Program benefits** – Cost avoidance of time wasted with delayed surgeries due to consent errors prior to incision



Implications for Clinical Practice & Sustainability

Given success of surgical eConsents, this implies that other consent forms should be considered on the electronic platform.

- The organization currently has over 200 consent forms
- Examples:
 - Donor milk
 - Chemotherapy
 - Donor transplant
 - Dilation and curettage
 - Plasmapheresis
 - Autopsy



Conclusions



- eConsents have proven worthy for surgical consents and in the prevention of consent error.
- Considerations should be made to expand eConsents to other types of consent forms not only for the consolidation of patient documentation and enhanced workflow but to further pursue safe patient practices and prevent documentation error.
- Nursing informatics is essential to leading evidence-based practice changes even with electronic platforms



Poster

eConsent Forms on Ancillary Applications with Electronic Medical Record Integration (EMR): Reducing Error Consent Rates

Lilian Chan, MSN, RN, PCN-K – DNP Student: Nursing Informatics and Data Science
Faculty Advisor: Jill Simonsz DNP, RN, NE-BC, ANCC

<p>Background</p> <p>Consent errors are defined as issues with quality of the documentation, implementation, or integrity. Nursing is quintessential to ensure at all stages of the perioperative continuum that such a form is correct and transferred appropriately before beginning the invasive procedure consented to.</p> <p>Purpose</p> <p>The purpose of this project is to reduce consent error rates with the utilization of ancillary applications to capture electronic signed and dated consents also made available in the patient's electronic medical record in the inpatient setting.</p> <p>Framework/EBP Model</p> <p>Johns Hopkins Evidence-Based Practice Model</p> <p>Project Plan Process</p> <p>Identifying a problem: Identify the problem, Assess the problem, Prioritize the problem, Develop a plan, Implement the plan, Evaluate the plan, Disseminate the results.</p> <p>Assessing the problem: Identify the problem, Assess the problem, Prioritize the problem, Develop a plan, Implement the plan, Evaluate the plan, Disseminate the results.</p> <p>Implementing the plan: Identify the problem, Assess the problem, Prioritize the problem, Develop a plan, Implement the plan, Evaluate the plan, Disseminate the results.</p> <p>Evaluating the plan: Identify the problem, Assess the problem, Prioritize the problem, Develop a plan, Implement the plan, Evaluate the plan, Disseminate the results.</p> <p>Disseminating the results: Identify the problem, Assess the problem, Prioritize the problem, Develop a plan, Implement the plan, Evaluate the plan, Disseminate the results.</p>	<p>Evidence for Problem</p> <p>Between May 2020 and May 2022, the University of California - San Diego (UCSD) has had 57 consent errors. The incident report largely does not use electronic consent forms.</p> <p>Incident reports show that paper-based handwritten surgical consent forms have an error rate of up to 30%. Errors include:</p> <ol style="list-style-type: none"> 1. Incorrect signature (Imparticular) 2. Financial fees due to absent or delayed surgical cases. <p>Evidence-Based Intervention</p> <p>Early eConsents should be coupled with ancillary applications on tablets integrated with the patient's electronic medical record.</p> <p>Implementation plan that provides:</p> <ul style="list-style-type: none"> • Education on the importance of eConsent forms • Training on the use of the eConsent forms • Support for the implementation of the eConsent forms 	<p>Evaluation Results</p> <ul style="list-style-type: none"> • Primary Consent error rate (3000 patient days rate) and identification between January 2021 to October 2022 decreased by 42%. Independent t test (alpha of 0.5, 300-42, p = .000). • Secondary eConsents initiated between May 2021 to October 2022 increased by 17%. <p>Conclusions</p> <ul style="list-style-type: none"> • eConsents have currently proven worthy for surgical consents and in the reduction of consent error. Positive results with only 2 out of 200 required consents consented. • Considerations should be made to expand eConsents to other types of consent forms. • Assessment on policies, procedures, additional educational videos, and operational compliance on monitoring usage of eConsents were. <p>Cost-Benefit Analysis</p> <p>Costs needed for an estimated 1000 patient encounters = 100 Plus. Based on the data for the presentation. Cost avoidance of consent requests related to consent errors is estimated to be 100 or equivalent. A cost savings of 100 is possible for the eConsent forms.</p> <p>Implications for Clinical Practice</p> <ul style="list-style-type: none"> • Prevents resource or financial cost related to delayed or absent surgeries due to consent issues. • Ensures that legal documents are addressed, completed appropriately, and prevents further issues related to possible provider negligence with misaligned consent documents. • Key role of nurse informatics to ensure design of fit-owned platforms meet operations and clinical workflows and safe patient quality outcomes.
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Appendix E

DNP Nursing Informatics and Data Science Track

AACN DNP Essentials/ANA-NI Standards/

USD DNP NI-DS Program Outcomes Exemplars

Clinical/Practicum – must total 1080 clinical hours upon completion of program

Clinical Practicum hours in MSN program: 424 hours (Johns Hopkins University: MSN: Health Systems Management)

Fall 2020: 182 hours

Spring 2021: 121 hours

Summer 2021: 114 hours

Fall 2021: 100 hours

Spring 2022: 76 hours

	<i>USD DNP Program Objectives</i>	<i>Exemplars</i> <i>Provide bulleted exemplars that demonstrates achievement of each objective</i>
<p><i>DNP Essential I: Scientific Underpinnings for Practice</i></p> <p style="text-align: center;"><i>ANA-NI Standards</i> <i>-Standard 1. Assessment</i> <i>The informatics nurse collects comprehensive data, information, and emerging evidence pertinent to the situation.</i></p>	<p>2. Synthesize nursing and other scientific and ethical theories and concepts to create a foundation for advanced nursing practice.</p>	<p><i>Fall 2020</i></p> <ul style="list-style-type: none"> • Identify baseline data targeted for change regarding eConsents evidence-based practice project (EBP) project in selected organization • Created key performance indicators and evaluation plan for evidence-based practice project <p><i>Spring 2021</i></p> <ul style="list-style-type: none"> • Collaborated with subject matter experts on baseline data/key performance indicators selected (consent error rate captured by iReport system)

DNP Essential II: Organizational & System Leadership for Quality Improvement & Systems Thinking

***ANA-NI Standards
-Standard 1. Assessment***

The informatics nurse collects comprehensive data, information,

5. Design, implement, and evaluate ethical health care delivery systems and information systems that meet societal needs and ensure accountability for quality outcomes.

- Obtain IRB excusal form both UCSD and USD to begin collating baseline data

Summer 2021

- Obtain access to individual iReport data to collate and analyze root cause analysis of any consent errors captured pre and post implementation of evidence-based practice project

Fall 2021

- Utilize iReport data for evidence-based project to analyze primary outcome of eConsent error trends against organization census or patient days
- Collaborate with organization's enterprise reporting team to assess process data or number of consents initiated with macro-system launch of project

Spring 2022

- Organize data into appropriate line and bar charts for dissemination

Fall 2020

- Formulated PICOT question identifying eConsents as primary intervention to reduce consent error rates
- Construct EBP eConsent project plan with selected Johns Hopkins framework

and emerging evidence pertinent to the situation.

-Standard 7. Ethics

The informatics nurse practices ethically.

DNP Essential III: Clinical Scholarship & Analytical Methods for Evidence-Based Practice

ANA-NI

-Standards -2. Problem and Issues Identification

The informatics nurse analyzes assessment data to identify diagnoses, problems, issues, and opportunities for improvement.

-Standard 9. Evidence-Based Practice and Research

The informatics nurse integrates evidence and research findings into practice.

4. Incorporate research into practice through critical appraisal of existing evidence, evaluating practice outcomes, and developing evidence-based practice guidelines.

Spring 2021

- Collaborate with regulatory and risk management team on ethical and additional implications of eConsent platform

Summer 2021

- Assess eConsents usage to match all patient populations (ex. blind, deaf, vulnerable)

Fall 2021

- Ensure all data collection is de-identified and analyzed ethically

Spring 2022

- Ensure all data collected, de-identified, and presented, are reviewed with peers of original go-live team

Fall 2020

- Collate and critically appraise latest literature surrounding electronic consent (eConsent) use, design, and quality outcomes to ensure appropriate use
- Analyzes baseline data regarding consent error rates in organization to prove need for evidence-based project change

Spring 2021

- Obtain IRB excusal form both UCSD and USD to

DNP Essential IV: Information Systems/Technology & Patient Care Technology for Improvement & Transformation of Health Care

ANA-NI

-Standard 4. Planning

The informatics nurse develops a plan that prescribes strategies, alternatives, and recommendations to attain expected outcomes.

-Standard 10. Quality of Practice

The informatics nurse contributes to quality and effectiveness of nursing and informatics practice.

begin collating baseline data

Summer 2021

- Analyze eConsent error rate data pre versus post implementation at macrosystem level without patient-level information

Fall 2021

- De-identify patient-level data when looking into root-cause analysis of consent error incidences pre and post evidence-based intervention

Spring 2022

- Collate de-identified data and run statistical statistics through SPSS to identify clinical versus statistical outcomes

Fall 2020

- Collaborating with risk management on policies, guidelines, and legal requirements on components necessary for eConsents

Spring 2021

- Collaborate with subject matter experts and operations on back-up to eConsent evidence-based platform in the event of downtime or unexpected technical issues
- Work with Information Systems team to design eConsent platform

7. Incorporate ethical, regulatory, and legal guidelines in the delivery of health care and the selection, use, and evaluation of information systems and patient care technology.

***DNP Essential V: Health Care Policy
for Advocacy in Health Care***

***ANA-NI
Standard 12. Leadership***
*The informatics nurse demonstrates
leadership in the professional practice
setting and the profession.*

3. Demonstrate leadership in collaborative efforts to develop and implement policies to improve health care delivery and outcomes at all levels of professional practice (institutional, local, state, regional,

matching evidence-based literature standards and best practices

- Pilot on Burn ICU to assess effectiveness of eConsent platform before system-wide launch

Summer 2021

- Create education and launch education intervention to shared governance councils on eConsent process
- Develop launch plan to effectively distribute tablets and begin process change from paper to electronic surgical consent process

Fall 2021

- Utilizes current data 5 months post launch to assess dissemination and suitability plan with available operational resources

Spring 2022

- Review post launch data to assess implications of original project's launch into the clinical space and means for expansion

Fall 2020

- Identified key stakeholders required to ensure design of eConsent process captures responsibilities from advanced providers and nursing during

-Standard 13. Collaboration

The informatics nurse collaborates with the healthcare consumer, family, and others in the conduct of nursing and informatics practice.

national, and/or international).

guideline/policy creation process

- Collaborating with IT analysts on the design of eConsents to ensure legal requirements are met

Spring 2021

- Collaborate with both operational, education, and IS leadership on the design of the electronic consent launch
- Collaborate with frontline end-users (providers and nurses) on electronic consent process and garner feedback before system-wide launch

Summer 2021

- Implement feedback provided on eConsent design and education before launching system-wide

Fall 2021

- Collaborates with inter-professional and advanced provider stakeholders on sustainability and policy adjustments of electronic consent usage

Spring 2022

- Reconvene with ancillary applications team to gauge focus on expansion of eConsents to MyChart mobile and patient-facing user face improvements

DNP Essential VI: Interprofessional Collaboration for Improving Patient & Population Health Outcomes

ANA-NI

Standard 5. Implementation

The informatics nurse implements the identified plan.

-Standard 5a. Coordination of Activities

The informatics nurse coordinates planned activities.

-Standard 5B Health Teaching and health promotion

The informatics nurse employs informatics solutions and strategies for education and teaching to promote health and a safe environment.

Standard 11 Collaboration

The informatics nurse collaborates with key stakeholders and others in the conduct of nursing and informatics practice.

1. Demonstrate advanced levels of clinical practice within defined ethical, legal, and regulatory parameters in designing, implementing, and evaluating evidenced-based, culturally competent therapeutic interventions for individuals or aggregates.

3. Demonstrate leadership in collaborative efforts to develop and implement policies to improve health care delivery and outcomes at all levels of professional practice (institutional, local, state, regional, national, and/or international).

Fall 2020

- Actively participating in UCSD peri-operative enhancement workgroup rounds as nursing representative with advanced providers on improving the overall consent process

Spring 2021

- Begin IRB excusal
- Collaborate with identified pilot units and associated managers/educators of eConsent process
- Schedule pilot in-services
- Lessons learned with pilot units before planning system-wide dissemination

Summer 2021

- Collaborate with all nurse managers, shared governance council, and additional meetings with frontline staff for system-wide dissemination
- Curate system-wide eConsent education with EMR training team and parallel with current policies, procedures, safe practices, and quality outcomes

Fall 2021

- Follow-up with with technical and analyst team on any issues received regarding eConsents

DNP Essential VII: Clinical Prevention & Population Health for Improving Nation's Health

ANA-NI

-Standard 3. Outcomes Identification

The informatics nurse identifies expected outcomes for a plan individualized to the health care consumer or the situation.

-Standard 5c. Consultation

The informatics nurse provides consultation to influence the identified plan, enhance the abilities of others, and effect change.

-Standard 6. Evaluation

The informatics nurse evaluates progress toward attainment of outcomes.

6. Employ a population health focus in the design, implementation, and evaluation of health care delivery systems that address primary, secondary, and tertiary levels of prevention.

Spring 2022

- Employing strategies with ambulatory department on means to help expand eConsents off of Topaz devices and onto tablets

Fall 2020

- Collaborating with IT EMR analysts on ensuring eConsent inpatient design addresses workflow needs as well as potential use for future inter-departmental transfer in the outpatient or ambulatory setting for all patient populations
- Ensuring security team as participants in eConsent design and clearance before launching platform

Spring 2021

- Identify processes for feedback on pilot unit on process, education, and patient outcomes with pilot unit stakeholders

Summer 2021

- Identify process for system-wide feedback on eConsent process, education, and patient outcomes once launching system-wide
- Collaborate with iReport manager to collate auto-reports on patient outcome/key performance indicator identified (consent error)

Fall 2021

- Assess current status of potential cost-benefit savings and return on investment on current state of consent errors
- Re-collaborate with original team and subject matter experts on addressing additional strategies to further improve consent error trend

Spring 2022

- Re-convene with original eConsents subject matter expert and go-live team on dissemination and sustainability plans

DNP Essential VIII: Advanced Nursing Practice

ANA-NI

-Standard 8. Education

The informatics nurse attains knowledge and competence that reflect current nursing and informatics practice.

-Standard 11. Communication

The informatics nurse communicates effectively in a variety of formats in all areas of practice.

-Standard 15. Resource Utilization

The informatics nurse employs appropriate resources to plan and implement informatics and associated services that are safe, effective, and fiscally responsible.

-Standard 14. Professional Practice

Evaluation. *The informatics nurse evaluates his or her own nursing practice in relation to professional practice standards and guidelines, relevant statutes, rules, and regulations*

-Standard 16. Environmental Health

The informatics nurse supports practice in a safe and healthy environment..

1. Demonstrate advanced levels of clinical practice within defined ethical, legal, and regulatory parameters in designing, implementing, and evaluating evidence-based, culturally competent therapeutic interventions for individuals or aggregates.

Fall 2020

- Participating in peri-operative and inpatient shared nursing governance councils to ensure transparency and input obtained on current consent process (virtual and in-person)
- Communicating with non-healthcare but interprofessional departments involved with clearance of policies, legal procedures, and guidelines (ex. risk, legal)
- Evaluating fiscal and financial components of project are not only feasible with upper management but possible indirect savings associated with project as well.

Spring 2021

- Collaborate with IS project management team on financial and resource allocation of tablets required for purchasing
- Evaluated sustainability cost of utilizing eConsent process with the organization's EMR system

Summer 2021

- Work with operational leaders on expansion of eConsent platform beyond surgical consents and labor resources required to allocate creation and

maintenance of new platform

- Oversee process issues related to eConsent process that may or may not impact patient safety

Fall 2021

- Evaluates eConsents project against the documentation burden pillars as stated by the American Nursing Informatics Association

Spring 2022

- Continue to explore latest evidence related electronic consent usage and optimization efforts

Date	Activity	Time
Fall 2018 - Spring 2020	MSN TOTAL HOURS	424
Fall 2020	CITI program Completion	5
Fall 2020	Created PICOT question with faculty/clinical advisor	3
Fall 2020	Conducted literature search on eConsent usage	5
Fall 2020	Critically appraised eConsent articles and presented results to clinical and faculty advisor	25
Fall 2020	Identified baseline data, key performance indicators, collection required based on outcome in PICO	5
Fall 2020	Reviewed internal evidence of eConsent usage outside of inpatient space for further need of evidence-based application in inpatient setting	10
Fall 2020	Created tentative detailed EBP project outline against Johns Hopkins model framework	25
Fall 2020	Drafted IRB excusal form to UCSD after approval of project by faculty advisor	3
Fall 2020	Reached out to identified key stakeholders on project proposal (ex. legal, information systems, operations, project management, clinical leadership) and further approval	10
Fall 2020	Identified current policies and procedures of clinical site organization on consent usage	10
Fall 2020	Participated in project planning and nursing education for new for soft lab label integration platform to prevent lab label errors	30
Fall 2020	Program planned with ancillary applications team mass iPhone launch for UCSD Health Hillcrest campus	20
Fall 2020	Just-in-time education and boots-on-the-ground training for iPhone launch	16
Fall 2020	Abstract creation and submission of Secure Chat launch for ANIA conference	5
Fall 2020	Boots-on-the-ground nursing education and technical support for COVID-19 Superstation	10
	FALL 2020 TOTAL	182
Spring 2021	Met with identified keystakeholders as eConsents inpatient group weekly until identified launch for May 2021	24
Spring 2021	Created nursing education required for new eConsents process (regarding both policy implications, clinical bedside workflow, and EMR interface)	10
Spring 2021	Laid out baseline and key performance indicator excel for future data collection	5
Spring 2021	Obtained USD IRB excusal to continue project	2
Spring 2021	Designed and presented mock stakeholder PPT DNP project to clinical and faculty advisor	5
Spring 2021	Designed and presented mock presentation DNP project poster	5
Spring 2021	Launched pilot unit for eConsents on ancillary applications (Bum Unit & L&D)	20
Spring 2021	Lessons learned from pilot group used for system-wide launch preparation	5
Spring 2021	Communications and reached out to all nurse managers on eConsents launch and tablet distribution	10
Spring 2021	Prepared launch team and scheduled for tablet distribution	5
Spring 2021	Launch team education run-through for go-live support team	10
Spring 2021	Shared governance rounds to prepare all inpatient nurses on eConsent implementation	20
Spring 2021	Took Epic Clinical Documentation Training Courses	40
Spring 2021	Took certification tests and completed related projects - became Epic Clinical Documentation Certified	50
	SPRING 2021 TOTAL	211
Summer 2021	Updated eConsents UCSD website with all education tip sheets and videos for both nursing and advanced providers	10
Summer 2021	eConsents on ancillary applications system-wide launch day	16
Summer 2021	Follow-up on all inpatient department units/ feedback collection from nursing staff on EMR integration against clinical workflows for following weeks	40
Summer 2021	Lessons learned from system-wide launch review with eConsents team	10
Summer 2021	Tracked data from May launch until October 2021	10
Summer 2021	Selected as poster presenter for ANIA conference with Dr. Jud Simonds regarding Secure Chat video presentation and poster creation	20
	SUMMER 2021 TOTAL	106
Fall 2021	Continued to track and collect data on eConsent usage	20
Fall 2021	Finalized statistics related to 10-month data collection	5
Fall 2021	Assessed strategic opportunities based on results and climate of organization	10
Fall 2021	Begin manuscript development	50
Fall 2021	Final poster edits and presentation to faculty advisor	10
Fall 2021	Attended ANIA Conference in San Diego	16
Fall 2021	Expanded soft lab label process to additional inpatient units	10
Fall 2021	Begin as program lead for Discharge Milestones system-wide initiative at UCSD	40
	FALL 2021 TOTAL	161
Spring 2022	Final manuscript development	50
Spring 2022	Final poster edits and presentation	5
Spring 2022	Stakeholder presentation preparation	10
Spring 2022	Stakeholder presentation	2
	SPRING 2022 TOTAL	67
	PROGRAM TOTAL	1151
	Required for Graduation	1080

The End