RESEARCH PROTOCOL

STUDY TITLE
COVID-19 Virtual Post Intensive Care Syndrome (CoV-PICS) Clinic: Modern, Convenient and Practical Recovery Care.

SHORT TITLE
CoV-PICS Clinic

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1. SYNOPSIS

Study Title	**COVID-19 Virtual Post Intensive Care Syndrome (CoV-PICS) Clinic: Modern, Convenient and Practical Recovery Care.**
Objective	To determine if discharged COVID-19 patients with PICS symptoms are willing and able to navigate the technology necessary to participate in a virtual outpatient clinic (feasibility and acceptance). To determine if a multidisciplinary group of professionals, familiar with PICS, are able to interpret information obtained from virtual visits and patient self-reported surveys to make recommendations for future care based on baseline and changes in patient symptoms over time (feasibility). To determine the ease of receiving and receptiveness of primary care physicians to a summary of clinic recommendations (feasibility and acceptance). To determine if the PICS symptoms and patient characteristics of patients with an ICU stay due to COVID-19 are similar to those reported in the literature of non-COVID-19 patients.
Study Period	Planned enrollment duration: Aug 2020 – Feb 2021 Planned study duration: Aug 2020 – Aug 2021
Number of Patients	80, adult (minimum age 18, no maximum)
Study Treatment	None
Study Design	Observational feasibility trial
Inclusion and Exclusion Criteria	Inclusion Criteria: 1. Patients who are at least 18 years of age 2. COVID-19 diagnosis with a stay in the intensive care unit at BJH 3. Missouri resident Exclusion Criteria: 1. Severe cognitive deficits or dementia prior to hospitalization 2. Long-term resident of a skilled nursing facility prior to admission 3. Non-English speaking (will not have an interpreter available) 4. Hospice or Comfort Care at discharge 5. No plans to return to some degree of independent living at the time of discharge 6. Pregnant or a prisoner at the time of discharge 7. Blind or deaf

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	If during the consent process if it is determined the patient will not have a home internet connection or smartphone access for the virtual clinic; or displays the inability to use either a computer or phone for virtual appointments, they will also be excluded from enrollment.
Measurements	Primary outcomes: 1. Patient adherence and determination of feasibility and acceptance with the virtual clinic and telehealth visits based on the FIM® (feasibility of intervention measure), IAM® (intervention appropriateness measure) and the AIM® (acceptance of intervention measure) 2. Patient attendance record 3. Number of on-time arrivals to the virtual visit 4. Number of patient successfully completed online questionnaires after initial training. 5. Patient primary care or clinic physician feedback using the tools in #1 and open ended comments. Secondary outcomes: (to compare patient characteristics to historical non-COVID-19 patients with PICS) 1. ICU Memory Tool® (measures recall and aids in our understanding of the quality of life) 2. PROMIS®29 Profile (measures anxiety, depression, fatigue, pain, physical function, sleep and ability to participate in social roles), 3. MOCA-5 minute® (measures cognitive function), 4. Katz and Lawton® (measures activities of daily living), 5. PG-SGA short form® (screens for malnutrition risk), 6. Five-time sit-to-stand, and Two-minute step test.[26-31]
Statistical Methodology	Descriptive statistics will be used to summarize the data. Continuous variables will be reported as medians and interquartile ranges or means and standard deviations as appropriate. Categorical variables will be reported as frequencies and percentages. Changes in the scores or times of the ICU Memory Tool®, PROMIS®29 Profile, MOCA-5 minute, Katz and Lawton®, PG-SGA short form®, Five time sit-to-stand and Two-minute step test, from hospital discharge to 3- and 6-month post discharge will be estimated using the Wilcoxon Signed Rank Test (non-parametric alternative to t-test) and compared across different categorical variables (e.g. age, gender, discharged directly to home, 30-day readmission) using ANOVA and continuous variables (e.g. APACHE IV, ICU length of stay) using ANCOVA. A consensus sample would be optimal in this feasibility study (all patients meeting criteria consented and participated), however since that

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	is unlikely, a convenience sample will be used. The future of patients with COVID-19 disease requiring ICU admission is uncertain. A conservative estimate of 50% of these patients will develop PICS. In the first month at BJH, 29 patients were discharged from the ICU. This translates into approximately 15 patients per month. Although this number may increase or decrease due to uncertainties surrounding the disease. Previous studies (see literature review) suggest care for PICS should begin within 12 weeks of discharge. Therefore once IRB approval is obtained, patients discharged within the past 10 weeks will be screened for possible participation. A post-hoc power analysis will be done.

2. STUDY PROTOCOL

2.1 Background and Significance

Background:
Coronavirus disease 2019 (COVID-19) is a highly contagious virus transmitted via respiratory secretions and was established as a pandemic on March 11, 2020.[1] The severity of the disease ranges from asymptomatic/mild (81%), to severe requiring oxygen (14%) and critical (5%) which requires intensive care unit (ICU) admission, ventilation and life support.[2] Two-thirds of these severe cases will develop the most severe manifestation of the disease, acute respiratory distress syndrome (ARDS).[3] Various epidemiologic reports show that the greatest mortality and morbidity risks concern frail and vulnerable people, in particular the elderly, and patients who suffer from multiple co-morbidities or chronic diseases (mainly hypertension, diabetes, cardiovascular disease, chronic, respiratory disease, immune compromised status). Patients requiring a stay in the ICU often have a considerably longer length of stay (LOS) than the typical ICU patient. At Barnes-Jewish Hospital (BJH) the typical LOS for an intubated ICU patient with COVID-19 disease is 10-12 days, whereas a non-COVID-19 medical ICU patient is 3-4 days. Thus far, the greatest attention has been paid to strategies to control contagion diffusion and life-saving measures for these critically ill infected patients. It is now time to focus on the inevitable long-term consequences of surviving COVID-19 disease. This feasibility study will provide information not only regarding the long-term sequelae of COVID-19 disease, but also how to structure future care with a primary emphasis on telehealth, both of which may be important if society is faced with another highly contagious disease.

The patients that survive will likely suffer from secondary physical, cognitive and mental impairments due to their prolonged stay in the ICU.[4,5] Together, these components comprise the Post Intensive Care Syndrome (PICS).[4] PICS purportedly affects 50 – 70% of ICU survivors which may develop during their stay or after discharge and it is estimated one-third of these survivors will die within a year.[4,5] Post COVID-19 patients may be at increased risk of PICS due to a prolonged period of respiratory distress and immobility along with the potential of lung fibrosis and cardiovascular

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deconditioning. In addition, unlike other patients with PICS, the survivors of COVID-19 may also find themselves facing distorted human relationships and social fabric within a changing economic picture, which may compound their mental health symptoms.[5] The COVID-19 pandemic disease surge will create an unprecedented number of ICU survivors vulnerable to PICS in the upcoming months, generating a major public health issue.

It is imperative as a health system we determine multiple avenues to address the needs of these COVID-19 survivors. The findings from this study are the first steps in determining the feasibility and potential impact of a telehealth PICS clinic that is able to address the needs of patients with COVID-19 disease and potentially other patients that are unable to attend a brick and mortar clinic and require virtual care. This research will examine the feasibility, acceptance and potential impact of a multi-professional telehealth ICU recovery care platform in addressing the needs of discharged ICU patients with COVID-19 disease from the viewpoint of the patient, the primary care physician and clinic provider. These findings will advance our understanding of the ability to use telehealth to provide care in an environment of patient isolation, as well as to those who may have been discharged with suboptimal inpatient education.

2.1.1 Preliminary Data

Although some evidence exists regarding the characteristics of inpatients with COVID-19 disease, it is far from robust. In addition, it is not clear what staff to inpatient interactions, such as frequency of therapy sessions or inpatient nursing education, were forgone due to the risk of viral contamination and need to preserve personal protection equipment. A Washington University IRB approved (#202005039) observational study at BJH will add to the COVID-19 body of literature on these topics and some of the pertinent data obtained will be used in the interpretation of results of the proposed study herein. Evidence regarding long-term complications of COVID-19 disease is lacking, however insights from PICS may provide a roadmap for the future care of these patients. It is highly likely, COVID-19 patients will suffer from similar physical, cognitive and mental health issues long-term.[6,7]

The physical impairments associated with PICS are believed to stem from ICU acquired weakness (ICU-AW) which is a combination of polyneuropathy, myopathy, neuromyopathy and muscle deconditioning.[6] Patients with PICS are reported to have poor mobility, frequent falls and a dramatic loss of independence with activities of daily living (ADLs).[8] A study by Borges et. al. compared 72 patients with sepsis/septic shock to a healthy control group. The patients admitted to the ICU had a substantial reduction in physical activity, exercise capacity and muscle strength at 3 months post discharge.[9] An evaluation of 109 ARDS patients, demonstrated that although there was an improvement in the six-minute walk test at 12 months, the results were still only 66% of predicted distance and only 49% of the patients had returned to work.[10] These findings were confirmed in another study which found 69% of patients with PICS were still restricted in performing ADLs and 50% had not returned to work 12 months after discharge.[11]

In addition to long lasting physical detriments, new or worsening impairments in cognitive

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function persist months to years after ICU discharge and are also associated with decrease ability to perform ADLs, as well as, reduced quality of life.[12,13] There is strong evidence that patients with delirium while in the ICU may suffer from cognitive impairments long after they are discharged.[6] Delirium is a common condition resulting from critical illness. This is particularly true in patients who require increased sedation and prone positioning to improve oxygenation, such as COVID-19 patients with ARDS. While receiving these medical interventions, patients often are unable to have clear memories leading to altered and sometimes frightening delusions from delirium.[14,15]

Anxiety, post-traumatic stress disorder and depression (70%, 10-50%, and 30%, of survivors respectively) are the major mental illnesses noted in ICU survivors 12 months after discharge.[16-18] Theoretically, these percentages may be even higher in patients with COVID-19 disease who may experience exacerbated feelings of emptiness, due to separation and isolation from family and friends, a breakdown of their social network, as well as the uncertainty about their diagnosis.

Prevention of PICS includes the incorporation of the ABCDEF bundle (assessment, prevention and management of pain; both spontaneous awakening and breathing trials; choice of analgesia and sedation; coordination of care and communication; delirium assessment, prevention and management; early mobility and exercise; and family engagement), widely known as the bundle that addresses the risks of sedation, delirium and immobility.[19] Both inactivity and malnutrition may exacerbate ICU-AW through skeletal muscle mass, strength and function loss. ICU diaries completed by staff and family members for the patient provide a description of experiences during ICU care. The diary may help to prevent PICS by improving the orientation of the patient and alleviating anxiety, depression and PTSD symptoms.[20]

Although individual symptoms of PICS have been reported over the past decade, PICS first became recognized in 2015.[17] Often signs and symptoms of PICS do not manifest until the patient has returned home, requiring evaluation and treatment in the outpatient setting. A wide variety of follow-up strategies to prevent/limit the impairments associated with PICS for ICU survivors have been examined which include: communication of care between the ICU team and primary provider, peer support groups, follow-up phone-calls from the ICU staff to patient, and scheduled in-person consultations.[21] There has also been the establishment of PICS outpatient clinics to attempt to manage this complex patient population. The goals of these clinics have been to improve recovery, decrease the cost burden on the healthcare system and improve the patient's quality of life.[22] Unfortunately, very few outpatient PICS clinics currently exists and those that do are generally in metropolitan areas. However, according to the American Hospital Association approximately 80% of ICU beds are located in community hospitals, suggesting these clinic may not be easily accessible by the majority of patients who need them (https://www.aha.org/statistics/fast-facts-us-hospitals).

Services offered and clinical professionals available may vary from clinic to clinic. Most have a medical director specializing in PICS and nursing support. Other professionals may include some combination of a neuropsychologist, social worker, pharmacist, physical therapy, occupational therapy, case manager and dietitian. In clinics with limited professionals, services include the patient evaluation and then coordination of care with referrals to primary care, subspecialty services,

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physical and occupational therapy as needed. A review of 30 clinics demonstrated the majority were limited to physician and nurse interactions while incorporating patient self-evaluation tools.[21] Most patients returned for their first clinic visit within six to twelve weeks after hospital discharge, although some initiated visits within 3 weeks[21].

Unfortunately, not all PICS outpatient clinics are widely utilized. Some authors report only 20-50% of patients discharged from the ICU suffering from symptoms, will seek follow-up care at a PICS clinic.[23,24] For example, in a single center study, 34 discharged ICU patients demonstrated significant declines in mobility ($p=0.026$), ADLs ($p<0.001$) combined with increased anxiety/depression ($p=0.048$), yet under half of them sought follow-up care.[24] When asked why they were not accessing healthcare services the main reasons included: unclear how to obtain referral, unable to afford the service, and lack of physical strength or transport to get to the clinic. PICS patients often suffer from financial difficulties due to the inability to return to work, which may make it more difficult for them to travel to a clinic.[24] However, like other patients they want to get better. Interviews of 39 adult critical illness survivors revealed the following core patient priorities during recovery: going home, improving mobility, participating in self-care, restoring physical and psychological health, and resuming previous roles and routines.[25]

Discharged patients with COVID-19 disease may experience increased challenges with transportation and treatment at an "in-person" clinics due to current restrictions in place for public and healthcare worker protection.

2.2 Objective

- Evaluate discharged ICU COVID-19 patients' involvement in, and acceptance with virtual CoV-PICS clinic visits.
- Test the design of a mutli-professional telehealth outpatient CoV-PICS clinic for effective care processes that evaluate impairments in physical, cognitive and mental health function in patients with COVID-19 disease.
- Determine the feasibility and acceptance of Primary Care Physicians regarding information provided and communication process from the CoV-PICS clinic.
- Determine if the PICS symptoms experienced by COVID-19 patients are similar to historically reported symptoms in non-COVID 19 patients with PICS.

2.3 Patient Selection

Patients who are +COVID-19 with a stay in the ICU. This screening list (name, medical record number) will be provided by the PI for (IRB#202005039) study: "The Effects of COVID-19 on Nursing Indicators, Delirium, Nutritional Status and Functional Mobility". The research coordinator will review the medical record for exclusion criteria, if none exist, and a contact phone number is available, the research coordinator will complete a phone screen (see attached).

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2.3.1 Inclusion Criteria

1. Patients who are at least 18 years of age
2. COVID-19 diagnosis with a stay in the intensive care unit at BJH

2.3.2 Exclusion Criteria

1. Severe cognitive deficits or dementia prior to hospitalization
2. Long-term resident of a skilled nursing facility prior to admission
3. Non-English speaking (will not have an interpreter available)
4. Hospice or Comfort Care at discharge
5. No plans to return to some degree of independent living at the time of discharge
6. Pregnant or a prisoner at the time of discharge
7. Blind or deaf

If during the consent process if it is determined the patient will not have a home internet connection or smartphone access for the virtual clinic; or displays the inability to use either a computer or phone for virtual appointments, they will also be excluded from enrollment.

2.4. Study Design

Observational feasibility. To determine if discharged COVID-19 patients with PICS symptoms are willing and able to navigate the technology necessary to participate in a virtual outpatient clinic. To determine if a multidisciplinary group of professionals, who are licensed in the state where the participant lives, familiar with PICS, are able to interpret information obtained from virtual visits and patient self-reported surveys to make recommendations for future care based on baseline and changes in patient symptoms over time. To determine the ease of receiving and receptiveness of primary care physicians to a summary of clinic recommendations. To determine if the PICS symptoms and patient characteristics of patients with an ICU stay due to COVID-19 are similar to those reported in the literature of non-COVID-19 patients.

2.4.1 Study Procedures

Study Procedures – Patient and PCP involvement	
Consent	Verbal consent is being sought. RC will be in a private space and obtain consent. All visits with the patient will be "virtual".
Chart Review	Once patient consent is obtained, a prospective or retrospective chart review (depending on availability of research team members) will be conducted to obtain several data points (see attached).
Day 1	RC: Add patient to enrollment log: Study ID, first name, 3 letters of last name, MRN#, hospital discharge date, date returned home (if different from discharge date), and patient preferred email and phone number. If patient consents, PCP name, office phone number and fax number. This will be in a password protected Excel file available only to research team members.
Day 1	RC: Document date/time of consent, upload pdf of note to RedCap

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Day 1	RC: Patient emailed a copy of the verbal consent, as well as, an information sheet, including a timeline for the study and "what to expect" and "what not to expect". What to expect: Timeline for study, Initial surveys, follow up surveys at 3 and 6 months, team visits (when – at minimum every 12 weeks; time commitment – 60-75 minutes), bi-weekly touch base email by RC s, individual visits with team members if warranted, summary of team recommendations after each visit, potential contact from PCP (if patient consented for information to be shared) and contact information for RC and PI for any questions or concerns throughout the study period. All providers engaging in telehealth visits will be licensed in the state were the participant lives. What not to expect: Clinic physicians or other providers to write prescriptions, order lab tests or perform any treatments
Day 1-2 Week 10 post initial visit And Week 22 post initial visit	RC: If patient not enrolled in MyChart or has forgotten how to access, call patient and walk them through obtaining access. Direct link (attached to the patient's study ID) will be emailed or texted (per patient preference) to access the following surveys, requesting one week turn-around time: ICU Memory Tool® (measures recall and aids in our understanding of quality of life) PROMIS®29 Profile (measures anxiety, depression, fatigue, pain, physical function, sleep and ability to participate in social roles) MOCA-5 minute® (measures cognitive function) PG-SGA short form® (screens for malnutrition risk)
Day 2-9 Week 11 and Week 23 post initial visit	RC: Will send form email from PI to PCP (if patient agreed to share information) providing an overview of the study (see attached) RC will obtain notice from RedCap when surveys opened. RC will check completeness of survey responses. If surveys not completed within 5 days, send reminder email. If not completed in 7 days, call patient offering to administer surveys over the phone.
Day 11 Week 11 and Week 23 post initial visit	RC: If patient does not complete surveys within 7 days of receipt and has not responded to phone calls; considered an enrollment fail (start of study) or withdrawal from study (repeat surveys), document on enrollment log.
Day 2-11 Week 11 and Week 23 post initial visit	RC: If surveys completed, send thank you email. Email and/or call patient to schedule first virtual visit. Email link to research team members for them to review responses in RedCap.
Day 9 – 18 Week 12 and Week 24 post initial visit	RC: Schedule initial 60-75 minute virtual assessment based on MD schedule. Email all team members to obtain availability in non-physician visit time. Send outlook calendar appointments to team members. All providers engaging in telehealth visits will be licensed in the state were the participant lives.
1-2 days before virtual team visit	RC: Send reminder email to research team members who will be on the visit. Send agenda for call – member/time slot. Send instructions/link for team members to join the virtual visit. Email the patient the instructions on how to access the virtual appointment in MyChart or the HIPPA approved WashU ZOOM link.

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30 min before each virtual team visit	RC: Email/call patient to address any concerns/questions regarding accessing virtual visit. RC will be "host" of the link for the visit.
Time of virtual team visit	RC: Send text to research team that patient has successfully entered the virtual visit.
During virtual team Visit	RC will function as timekeeper – send "chats or texts" to research team members to keep them on time. Team members will speak one at a time, with other members on mute. MD will start with introduction and overview that summary of recommendations after the visit will be sent to the patient's PCP and the patient, emphasizing the patient and the PCP will be responsible for implementing and monitoring recommended treatments. Each professional will follow with introduction/any additional questions. The physical therapist and occupational therapist will go last to complete the following if the patient agrees/is able: Katz and Lawton® (measures activities of daily living) Five time sit-to-stand Two minute step test All providers engaging in telehealth visits will be licensed in the state were the participant lives.
1-3 days post virtual team visit	Team Members: responsible for documenting in EPIC their note/summary within 2 days of visit RC: Email patient summary of recommendations are available in MyChart for patient to access. Email PCP that summary is available in MyChart, or fax summary if PCP does not have access to MyChart. Clinic MD may choose to contact PCP personally regarding patient evaluation if they deem necessary.
2, 4, 6, 8, 10 weeks post initial and second virtual team visit	RC: Phone call to patient – What recommendations have been implemented? Any questions for any member of the research team? Any team member: may touch-base with the patient or treating professional (home physical therapist) if recommendations have been implemented by the PCP (e.g. physical therapy, change in medication, change in diet) to determine if they have any questions regarding the treatment initiated. If team member desires a virtual visit with patient – RC will host.
Week 25 - 26	RC: Send final surveys to patient via link. An email with a link will also be sent to their PCP – at the start of their survey a statement will be made clearly stating if they complete the survey they are consenting to the study. The final survey tools sent will include: FIM® (feasibility of intervention measure), IAM® (intervention appropriateness measure) and the AIM® (acceptance of intervention measure). If surveys not completed within 5 days, send reminder email. If not completed in 7 days, if patient – phone call offer to administer surveys over the phone; if PCP send 2nd email reminder. If the PCP does not complete, will consider denial to participate (document on enrollment form).
Week 25 - 26	RC: Once final surveys are completed email patient informing them their participation in the study is now completed, thanking them for their time and offering any final comments regarding the feasibility of the clinic may be emailed.
RC: research coordinator, PI: principle investigator, PCP: primary care physician	

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2.4.2 Minimization of Bias

There will be no specific gender or ethnic background for enrollment.

2.4.3 Pre-Study Period

2.4.4 Study Period

Methods:

2.4.6 Observations and Measurements

2.4.6.3 Primary Outcome Measures

Primary outcomes:
1. Patient adherence and determination of feasibility and acceptance with the virtual clinic and telehealth visits based on the FIM® (feasibility of intervention measure), IAM® (intervention appropriateness measure) and the AIM® (acceptance of intervention measure)
2. Patient attendance record
3. Number of on-time arrivals to the virtual visit
4. Number of patient successfully completed online questionnaires after initial training.
5. Patient primary care or clinic physician feedback using the tools in #1 and open ended comments.

2.4.6.4 Secondary Outcome Measures

Secondary outcomes: (to compare patient characteristics to historical non-COVID-19 patients with PICS)
1. ICU Memory Tool® (measures recall and aids in our understanding of the quality of life)
2. PROMIS®29 Profile (measures anxiety, depression, fatigue, pain, physical function, sleep and ability to participate in social roles),
3. MOCA-5 minute® (measures cognitive function),
4. Katz and Lawton® (measures activities of daily living),
5. PG-SGA short form® (screens for malnutrition risk),
6. Five-time sit-to-stand, and Two-minute step test.[26-31]

2.4.6.5 Statistical Methods

Descriptive statistics will be used to summarize the data. Continuous variables will be reported as medians and interquartile ranges or means and standard deviations as appropriate. Categorical variables will be reported as frequencies and percentages. Changes in the scores or times of the ICU Memory Tool®, PROMIS®29 Profile, MOCA-5 minute, Katz and Lawton®, PG-SGA short form®, Five time sit-to-stand and Two-minute step test, from hospital discharge to 3- and 6-month post discharge will be estimated using the Wilcoxon Signed Rank Test (non-parametric alternative to t-test) and compared across different categorical variables (e.g. age, gender, discharged directly to

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home, 30-day readmission) using ANOVA and continuous variables (e.g. APACHE IV, ICU length of stay) using ANCOVA.

2.4.6.6 Sample Size

A consensus sample would be optimal in this feasibility study (all patients meeting criteria consented and participated), however since that is unlikely, a convenience sample will be used. The future of patients with COVID-19 disease requiring ICU admission is uncertain. A conservative estimate of 50% of these patients will develop PICS. In the first month at BJH, 29 patients were discharged from the ICU. This translates into approximately 15 patients per month. Although this number may increase or decrease due to uncertainties surrounding the disease. Previous studies (see literature review) suggest care for PICS should begin within 12 weeks of discharge. Therefore once IRB approval is obtained, patients discharged within the past 10 weeks will be screened for possible participation. A post-hoc power analysis will be done.

2.5 Management of Intercurrent Events

2.5.1 Adverse Experiences

No adverse events are expected in this non-interventional study.

2.5.2 Premature Discontinuation

Subjects will be withdrawn if the investigator decides that discontinuation is in the best interest of the subject, inactivity by the subject or the subject requests withdrawal from the study.

2.5.3 Potential Risks

Minimal risk, only breach of patient confidentiality

2.5.4 Procedures to Minimize Potential Risks

The study offers minimal risk to the patient as no interventions will take place. The following measures will be used to minimize breach of confidentiality risk: minimum necessary data collection, all patient data will be either be in RedCap (without any patient identifiers) or in a password protected Excel file. Only research team members will have access to this data. Any patient identifiers will be discarded per WashU protocol as soon as possible within the context of the study. All virtual visits will occur on a secure site via MyChart or WashU HIPPA approved Zoom. Any transmitted electronic from will be done using recognized security for electronic submissions. All providers engaging in telehealth visits will be licensed in the state were the participant lives.

2.5.5 Data and Safety Monitoring Plan

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Based on the small size and relatively low risk nature of the protocol, only a second team member not involved in data collection (statistician) will perform the duty of data and safety monitoring. A review of 10% of the records added will occur every 3 months.

3. HUMAN SUBJECTS RESEARCH

3.1 Protection of Human Subjects

The study will be conducted under appropriate Washington University Institutional Review Board protocols and consent forms approvals. The study will be conducted under the supervision of the PI, a Board-Certified and GCP-certified anesthesiologist, and a mentor with several years experience in the conduct of human volunteer studies.

3.2 Sources of Materials

Review of the patient's electronic medical record (EPIC) may occur anytime between when the patient consents to study conclusion. Responses to surveys will be collected as outlined in the study procedure above.

3.2.1 List of Protected Health Information Collected for Study

See data attachment.

3.2.2 Data Management

All materials will be stored in a secured environment (password protected) – either RedCap or a password protected Excel file. Access will be limited to research team members only.

3.3 Recruitment and Informed Consent

Patients who are +COVID-19 with a stay in the ICU will be screened. A list of patients that meet these criteria that includes the patient's name and medical record number will be provided by the PI for (IRB#202005039) study: "The Effects of COVID-19 on Nursing Indicators, Delirium, Nutritional Status and Functional Mobility" (see attached letter). The research coordinator will review the medical record for exclusion criteria, if none exist, and a contact phone number is available, the research coordinator will complete a phone screen (see attached). The research coordinator will call in the patient from a private room. If the phone screen demonstrates the patient has potential signs and symptoms of PICS and the mental capacity to answer questions, a verbal consent will be sought (see attached). Prior to consent the patient will be asked if they need to move to a private area or if the prefer to invite family members to present. Verbal consent is being sought as the current study does not include any patient intervention.

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3.4 Potential Benefits of the Proposed Research to the Subjects and Others

Participants

The study team consists of team members with expertise in the area of critical care and therefore may be more likely to recognize presence of, or risk of developing, post-intensive care syndrome (PICS) symptoms. Sharing this multi-professional expertise with the patient and their PCP or clinic physician may allow for a more timely and holistic approach to follow-up care. Patients, PCPs and clinic physicians will have an increased awareness of PICS.

Society

The characteristics of the symptoms displayed in this sample of COVID-19 patients can be compared to those of non-COVID-19 patients as previously reported in the literature. This may provide insight for future care of patients since this is a new disease and so little is known. A large cohort of ICU survivors are likely to be at high risk for PICS. The potential to treat or prevent this complication via a virtual approach could have a large public health impact.

3.5 Inclusion of Women

As a matter of operational policy, our studies of volunteers routinely and deliberately include equivalent numbers of women and men. To ensure sufficient enrollment of women, we typically close enrollment to men once their quota has been filled. This approach has been highly successful. However, the nature of the current study precludes enrollment of a set number of female or male patients since the main criteria for inclusion is +COVID-19 admission with an ICU stay.

3.6 Inclusion of Minorities

All of our studies actively encourage the participation of minorities in the research. Our minority recruiting typically matches the demographic composition of the Washington University community from which subjects will be recruited (78% white, 21% Black, <1 % Hispanic). However, the nature of the current study precludes enrollment of a set number of minorities since the main criteria for inclusion is +COVID-19 admission with an ICU stay.

3.7 Inclusion of Children

Children <18 yr will <u>not</u> be studied in this study

4. REFERENCES

1. Novel Coronavirus Situation Reports. Available at: https://www.who.int/emergencies/disesases/novel-coronavirus-2019/situation-reports. Accessed April 30, 2020.

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