**Article details: 2021-0102**
**Title:** Infection control measures in hemodialysis units to prevent outbreaks of COVID-19: a cross-sectional survey from Quebec
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**Reviewer 1:** Marisa Battistella
**Institution:** Pharmacy, University Health Network

General comments (author response in bold)

3.1. For the survey- why was IPAC leaders (ID specialists) not involved in the design of the survey.
**Thank you for the comment, this is now added as a limitation. (Finally, survey development had some limitations. Infection disease specialists were not consulted in the design of the questionnaire.)**

3.2. For the survey- can this be published in the supplement
**Thank you, the survey is now added as a supplement. (Appendix 1)**

3.3. Was other IPAC literature searched in designing the survey?
**Yes, a literature search was performed although data was scarce at this stage of the pandemic. ("A questionnaire was designed by 4 nephrologists directly involved in outbreak prevention efforts at their institutions after a careful review on the emerging literature on COVD-19 pandemic preparedness as well as expert consensus on appropriate IPAC measures related to hemodialysis units ")**

3.4. For clarity and face validity- did one not consider another method of validation? What about asking different experts from IPAC to review?
**We did not perform a round of expert reviews but we piloted the questionnaire with the help of a nurse manager. This is now added in the method section. (The questionnaire was also piloted with the help of a nurse manager to identify any ambiguities in the questions.)**

3.5. For crowed vs not crowded HD centres- how was this defined? Seems very subjective.
**Thank you for your comment. As detailed in the previous answer, we chose to put greater emphasis on the physical distance between hemodialysis chair in the revised version since this is a more objective metric (Table 1 and 2)**

3.6. Would be interesting to know if patients tested positive for COVID – Where the source of infection was from- at home/transportation/ HD unit. For these IPAC measures that were implemented- would be interesting to know if any patients did actually pick up COVID in the HD unit
**We agree, unfortunately, this was not feasible at most community sites devoid of research staff. This is better explained in the limitation section of the revised manuscript ("Most importantly, it is not possible to determine the proportion of cases related to outbreaks inside hemodialysis units. This would have required a standardized method to adjudicate whether each case was linked to an outbreak which was not feasible.")**

3.7. What about vaccination timelines in Quebec HD centres- when did this occur?
**While vaccination in hemodialysis patients began as early as January 26th, patients did not receive their second dose. We and others have shown that a single dose produces a suboptimal response in dialysis patients. ("This is compounded by uncertainties related to vaccine efficacy in this population. Recent studies on humoral response suggest that only multiple vaccine doses will succeed in conferring an adequate immunologic response in most dialysis patients 20,21. Before April 2021, almost all dialysis patients received either one vaccine dose or none.")**

3.9. Minor issue: page 4 medan should read mean.
**Thank you, the manuscript has been modified accordingly.**

**Reviewer 2:** Matthew Arduino
**Institution:** Division of Healthcare Quality Promotion, CDC

General comments (author response in bold)

4,1 Remember that COVID-19 is the disease and SARS-CoV2 is the virus so it is exposure to the SARS-CoV2 that causes COVID-19. and for Dialysis patients exposure may occur somewhere in the community setting, during transport to the clinic, at the dialysis clinic in the waiting area before or after treatment, and during treatment...
**Thank you, the manuscript has been modified accordingly. (Multiple changes)**

4,2 Remember dialysis clinics for the most part in many parts of the world are open concept in design with a nursing station that can view many dialysis stations. Many dialysis stations have at least one isolation for HBsAg+ patients these are not designed as airborne isolation rooms (Typically used for TB) so they are not designed to be negative pressure.
**We agree this is highlighted by the low number of units with negative pressure isolation rooms**

4,2 Also in the US (in building codes) there is a minimum square footage allowance for dialysis stations depending on whether there are chairs (80 sq ft) or gurneys (90 sq ft) and a minimum of 4 ft between patient chairs (FGI. Guidelines for Construction of Outpatient Facilities; FGI. Guideline for Construction of Healthcare Facilities). however, some states require a minimum of 100 sq ft for each station.
**We are not aware of the current requirement in the Quebec province but we confirm that some dialysis unit has been constructed before 1980 and/or are located in areas not designed for this purpose (e.g. former hospital chapel)**

4,3Is there a Census of hemodialysis patients in Quebec? CORR hasn't been able to publish one. or are limited to approximate numbers with the exception of the data from the 26 facilities providing COVID-19 infection data?
**Exactly, unfortunately, limited data exists since Quebec does not participate in CORR.**

4,4 38 (70.4%) facilities responded to the survey. Did these facilities provide accurate patient counts? if so just report these....and the numbers from above....
**Thank you, the manuscript has been modified accordingly.**

4,5 How is poor ventilation defined? Dialysis treatment rooms should have a minimum 2 outside air exchanges per hour and a minimum total 6 ACH. if this is what they have then they are meeting standards...
**New units are likely to respond to these criteria. However, most HD units in the province of Quebec are housed in hospitals, and hospitals' construction date back to a while back. Ventilation was not assessed during this study. We removed this portion from the discussion. (Removed poor ventilation from the discussion section.)**

4,7. Define crowdedness in methods as reported in results <2m
**See previous answers. Crowdedness is judged by the respondents and is subjective. In the revised manuscript, we put greater emphasis on the distance between hemodialysis stations <2 (Table 1 and 2)**

4,8 See Caplin paper regarding infection control practices and COVID-19 in London Dialysis Clinics Just published in CJASN and include in discussion....more comments in the attached manuscript.
**Thank you, we have integrated this new publication related to unit characteristics associated with infection and the impact of sociodemographic characteristics ("In a recent study in the United Kingdom, the dialysis area, as well as the station distance, were associated with a lower risk of a positive test or admission for SARS-CoV2 infection For example, material deprivation has been identified as an independent risk factor in the greater London region of the United Kingdom")**

4,9 Surprised no eye universal eye protection by dialysis staff prior to COVID-19. Routine part of PPE in US due to bloodborne pathogen standard. Also surprised that source control not included as part of triage for all patients with screening of patients at entry into facility.
**Occular protection is usually worn only during procedures including artieriovenous fistula puncture and catheter manipulation. In the original version of the manuscript was ambiguous on occular protection. Most units recommended to staff to use ocular protection when caring for patients or in proximity but most did not mandate ocular protection at all times within the unit. This has been clarified in the revised version. (Change in Table 1)**