

Choosing Home Hemodialysis: A Critical Review of the Effect on Outcomes



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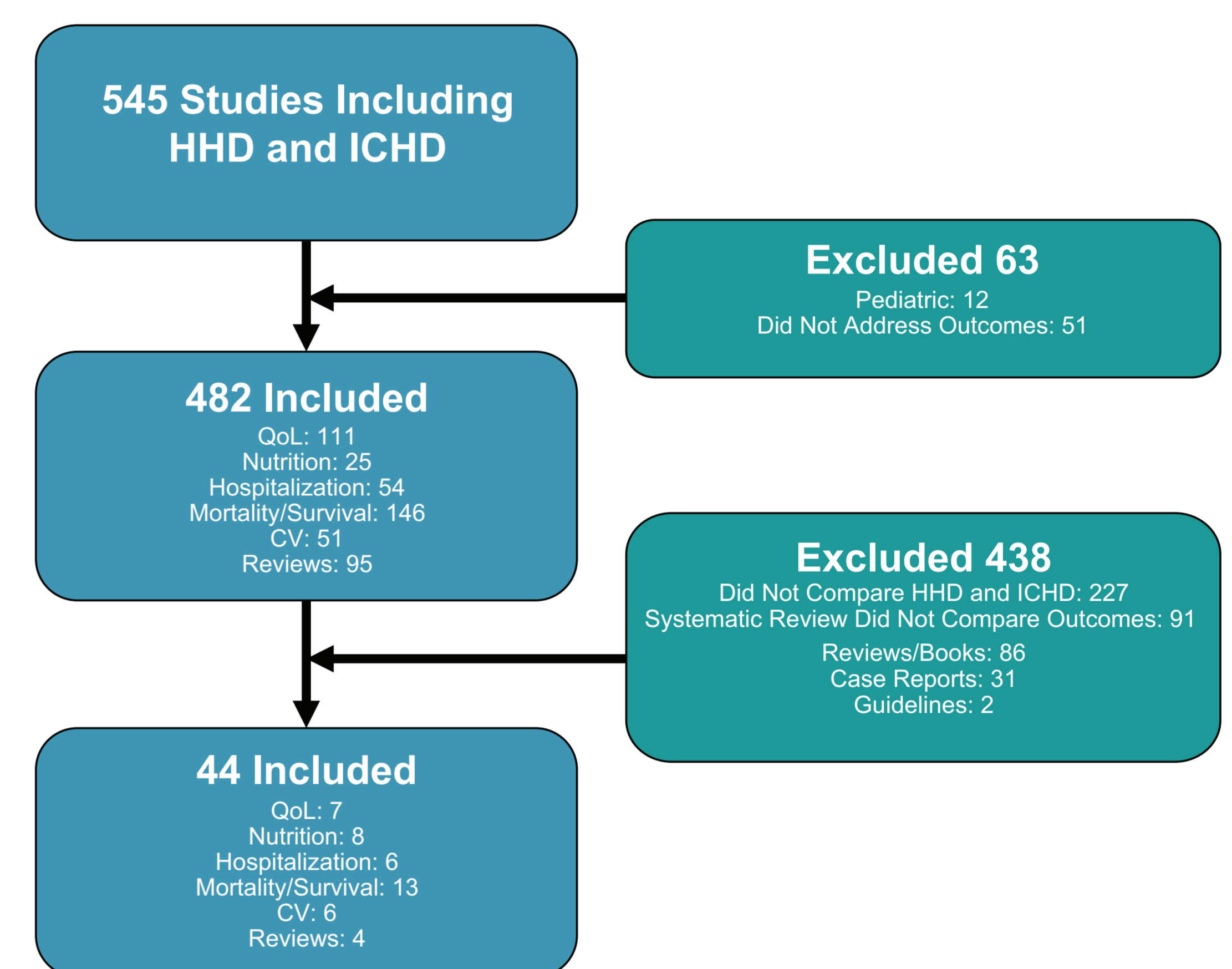
Background

- Favorable clinical outcomes have been associated with use of home hemodialysis (HHD) as a modality including:¹⁻¹¹
 - Quality of life (QoL) parameters over time
 - Survival and mortality
 - Cardiovascular (CV) endpoints
 - Phosphate control
 - Nutritional status
 - Anemia management
- However, differences in outcomes with HHD compared to conventional In-CenterHD (ICHD) are not well characterized.
- To more completely understand the effect of HHD on clinical outcomes in dialysis patients, we performed a critical review of the available literature, to evaluate the effects of HHD and ICHD on patient outcomes.

Methods

- Medical and scientific literature were systematically reviewed for various outcomes comparing the use of HHD to ICHD using:
 - Pubmed
 - Embase
 - Cochrane Central Register of Controlled Trials
- Identified publications on clinical, prospective, and interventional studies (nonrandomized and randomized) were screened by two independent reviewers to determine study eligibility.
- Applied the validated Downs and Black approach with 26 items based on 5 subscales of reporting, external validity, bias, confounding, and power.¹²
- Scores were generally reported as 0 or 1, with two exceptions (0-2 or 0-5 scales for a reporting and power question, respectively).
- Studies for each outcome were ranked by group, with a maximum score possible of 31; the higher the score, the better the quality of the data.

Figure 1. Schematic of studies identified



Results

Table 1. Summary of the results

Outcome Group	Results
Mortality	• 13% to 52% greater reductions in mortality when comparing HHD to ICHD in 10 of the 13 publications; 2 publications found a higher risk of death in HHD vs. ICHD; 1 publication found no significant difference
Hospitalization	• No significant differences in hospitalization rate found when comparing HHD to ICHD in 6 of the 6 publications; 1 publication found shorter length of hospital stay
CV	• Blood pressure and left ventricular size was generally lower in HHD patients when compared to ICHD patients in 6 of the 6 publications
Nutrition	• Conflicting results in 8 publications; 6 publications found improved muscle mass, total protein, and BMI in HHD patients while 2 publications found no significant results
QoL	• 7 publications demonstrated more positive trends in the HHD population over the ICHD population

Table 2. Assessment of the quality of studies included

Outcome Group	Score (Max: 31)	Ranking	Net Effect of Clinical Data
Mortality/Survival	17	1	+
Hospitalization	14.7	2	+/-
CV	14.7	2	+++
Nutrition	14.1	4	+
QoL	12.1	5	++

Conclusions

- Despite limitations in the current data, 66% of the publications reviewed (29/44) demonstrated improved clinical outcomes when using HHD in patients who may benefit from home dialysis treatment. These include improved survival, CV, nutritional, and QoL parameters.
- Even though HHD may not be suited to or chosen by all patients, a review of the literature suggests that HHD should be provided as a modality choice for substantially more than the current 1.8% of HHD patients in the US.

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