

Evaluating the Impact of a Specialized Inpatient Geriatric Unit Amongst an Asian and Pacific Islander Population: A Pilot Study

Shunsuke Kondo, MD¹, Kevin Benavente, DO², Kelly Watanabe, MD³, Kai Akimoto, MD⁴, Brita Aramaki, MD, MPH⁵

¹ Department of Medicine, University of Hawai'i, John A Burns School of Medicine, ² Department of Medicine, University of Hawai'i, John A. Burns School of Medicine, ³ University of Hawai'i, John A. Burns School of Medicine, ⁴ University of Minnesota Medical School, ⁵ Department of Geriatrics, University of Hawai'i John A Burns School of Medicine

Keywords: Acute Care for Elders, Native Hawaiian and Other Pacific Islander, rehabilitation, geriatric population, frail

<https://doi.org/10.62547/POYJ8879>

Abstract

Rehabilitation programs targeting hospitalized geriatric patients reduce functional decline and 30-day readmission rates. Limited data exist regarding using rehabilitation programs with Native Hawaiian and Other Pacific Islander (NHPI) and Asian populations. In the current study, the Acute Care for Elders (ACE) program was implemented to help minimize delirium, prevent deconditioning, and secure appropriate discharge. Utilizing a multidisciplinary team protocol, patients older than age 60 with an Activity Measure for Post-Acute Care (AMPAC) score of at least 18 and admitted within the preceding 3 days were eligible for inclusion. Via retrospective chart review, outcomes and demographic data were compared among those who completed the program (Completed), disenrolled prematurely (Early Termination), or declined enrollment (Declined). The median age was 73 years (25%ile, 75%ile: 68, 80) with 49% Asian, 19% NHPI, and 32% White or other race. Median Length of Stay (LOS) for Completed, Early Termination, and Declined groups were 3.9, 9.9 and 4.0 days respectively ($P=.003$). Discharge disposition varied significantly, with 90% of Completed patients returning home versus 46% in the Early Termination group ($P=.002$). Completion of the ACE protocol was significantly associated with reduced LOS and higher rates of home discharge among Asian populations ($P=.033$).

Abbreviations and Acronyms

ACE=Acute Care for Elders

AMPAC=Activity Measure for Post-Acute Care

LOS=length of stay

NHPI=Native Hawaiian and Pacific Islanders

Introduction

Hawai'i has the highest life expectancy in the United States, and the state's geriatric population is expected to exceed 22% by 2030.¹ Despite stabilization during acute hospitalizations, previously independent geriatric patients frequently require assistance with activities of daily living once discharged.² Hospital-acquired deconditioning and insufficient social support contribute to discharge challenges, and many elderly patients are unable to return home. Barriers to home discharge include lack of commu-

nity resources, limited availability of social coordinators to make in-person assessments post-discharge, and delays of home health services. Programs targeting hospitalized geriatric patients have demonstrated reductions in functional decline, mental health problems, 30-day readmissions, and cost.^{3,4} Though previous reports have demonstrated that programs providing specialized acute care for elders provide improvements in functional outcomes, mental health, and 30-day readmissions with reductions in cost,⁵ the population studied did not include Native Hawaiian and Pacific Islanders (NHPI). NHPI populations, due to various social determinants of health, have accelerated rates of dementia and biological aging, and lower rates of adequate physical activity at baseline.^{3,4,6} To improve discharge outcomes and reduce the need for short-term care placement including skilled nursing facility and short term rehabilitation facility placement, the Acute Care for Elders (ACE) unit,^{3,5,7,8} a standardized intervention designed to provide specialized inpatient care for geriatric patients, was implemented. This intervention, validated primarily in White cohorts,⁹ aims to: (1) enhance the geriatric treatment environment, (2) promote a patient-centric management approach, (3) encourage discharge to a patient's home, and (4) enforce consistent review of medical care.

The ACE unit is designed to minimize delirium, prevent deconditioning in at-risk seniors, and secure appropriate and timely discharge. The ACE unit has a pre-specified protocol. The original ACE protocol was published in 1995,⁸ and has been modified since then to conform to local resource availability and practice patterns. The key components of the original protocol are preparing the appropriate environment; patient-centered care including daily assessment by nurses of physical, cognitive, and psychosocial function and daily rounds by the multidisciplinary team; discharge planning with social workers and home health-care nurses; and medical care review to minimize the adverse effects of selected procedures. These components were adjusted to accommodate the schedules of local hospital staff. In addition, nurses and physical and occupation therapists (PT/OT) were trained to perform daily assessments of mobility using the Activity Measure for Post-Acute Care (AMPAC) score, which was not included in the original version of ACE protocol.¹⁰ The AMPAC score is a 41-item validated assessment of mobility, activities of daily activity and cognition. Unit benchmarks based on the components of the ACE protocol were established, encouraging team members to facilitate achievement. Dietary consultation is

done for personalized nutritional support. Patients have uninterrupted periods for sleep from 10 pm to 5 am, which includes holding vital signs checks and spacing out medication administration when possible.

Because the study was conducted in Honolulu, Hawai'i, the study population included a high proportion of Asian and NHPI patients, populations that remain underrepresented in the published literature. Cultural, linguistic, and structural barriers may affect health care communication, trust, and patient engagement among these groups, potentially influencing the effectiveness of multidisciplinary inpatient interventions.¹¹⁻¹⁴ Evaluating programs such as the ACE protocol in populations enriched with Asian and NHPI patients may therefore provide important insight into whether benefits demonstrated in prior studies are generalizable to more diverse communities. The aim of this study was to evaluate the impact of the ACE protocol in a community with high numbers of Asian and NHPI patients.

Methods

This pilot study was conducted in a tertiary hospital in Honolulu, Hawai'i. Patients admitted between July 1 and October 27, 2024 were enrolled. The protocol was reviewed by the institutional review board (protocol: IRB-FY2025-124) at The Queen's Medical Center, which is located in Honolulu, Hawai'i.

Patients older than 60 years, able to ambulate with an AMPAC score of at least 18, and admitted to a single, 32-bed medical-surgical geriatric unit floor within the preceding 3 days were eligible for inclusion. Patients who were bedbound, had undergone surgery during the hospitalization, had strict bedrest precautions, were diagnosed with acute blood loss anemia, were hypoxic at rest with oxygen saturation less than 94%, had any hypotension at rest, had a body mass index of greater than 40 kg/m², were residing in a long-term care facility before hospitalization, or were participants in a guardianship were excluded due to safety concerns.

Via retrospective chart review, length of stay (LOS), AMPAC scores on admission and at discharge, discharge disposition, and demographic data among 3 groups were compared: those who completed the program (Completed), those who were initially enrolled but disenrolled prematurely due to patient preference or transfer to another unit such as higher level of care including intensive care unit, or transition to hospice care (Early Termination), or those who declined initial enrollment (Declined). Demographic data included age, sex, and self-identified race based on the registration record in electronic medical records. Enrollment and disenrollment were tracked by following the orders for ACE unit placement within the electronic medical record, while patients who declined enrollment were tracked and recorded manually via reporting of the ordering provider to the study team.

The primary study outcome was the LOS of patients in each group. Secondary outcomes included group differences in AMPAC scores on admission and discharge, and

discharge disposition. Differences in these outcomes between different ethnic groups were also evaluated.

All statistical analyses were conducted using R Statistical Software (version 4.2.0; R Foundation for Statistical Computing, Vienna, Austria). Data were presented as either median with 25th and 75th percentiles for continuous variables or as count and percent (%) for categorical variables. The normality of the distribution of continuous variables was assessed through the Shapiro-Wilks test, which showed non-normal distribution. Continuous variables were compared with the Kruskal Wallis test for 3 or more variables and Mann Whitney U test 2 variables. Categorical variables were compared using the Fisher's Exact test. Statistical significance was defined as a *P* value \leq .05.

Results

A total of 99 patients were enrolled at the time of analysis, with 69 in the Complete group, 13 in the Early Termination group, and 17 in the Declined group. The population consisted of 49% Asian individuals, 19% NHPI, and 32% who were either White, Black, or not reported, with a median age of 73.1 years. There were 2 Black patients and 1 patient with race not reported. There were no significant differences in age or race among groups ([Table 1](#)). The median time enrolled in the ACE program was 2.18 days in the Completed group, compared to 1.95 days in the Early Termination group, which was not statistically significant ([Table 1](#)).

Overall, 52% of patients were male, but the Declined group had a higher percentage, with 94% males, compared to 44% in the Completed group and 39% in the Early Termination group (*P*<.001). There were no other important differences in demographics among the groups.

NHPI were more likely to be younger with median age 68.6 years compared to 75.2 years for Asians and 75.6 years for White or other race (*P*=.002; [Table 2](#)). Asians had a shorter average LOS with a median LOS 3.82 days compared to 4.86 days for NPHI and 5.27 days for White or other race (*P*=.033).

The median LOS was significantly different among groups: 3.90 days in the Complete group, 9.89 days in the Early Termination group, and 4.00 days in the Declined group (*P*=.003). Significant differences in disposition were demonstrated, with 90% of Completed patients discharged home, compared to 46% in the Early Termination group, and 84% in the Declined group (*P*=.002). For discharge to care facilities, 31% of the Early Termination group were discharged to a nursing home or rehabilitation facility, compared to 9% in the Completed group, and 6% in the Declined group (*P*=.002). There was no significant difference in AMPAC score between groups on admission (median of 20, 19, 19 for Completed, Declined, Early Termination respectively; *P*=.86) or at discharge (median of 22, 22, 20, for Completed, Declined, Early Termination respectively; *P*=.34; [Table 1](#)).

ACE group distribution did not vary significantly among races (*P*=.104). Initial AMPAC scores on admission between racial groups showed no statistical difference (*P*=.79) and fi-

Table 1. Baseline Characteristics and Results of the Geriatric Inpatient Study Population by Participation Group

	Overall (N=99) No. (%)	Completed (n=69) No. (%)	Early Termination (n=13) No. (%)	Declined (n=17) No. (%)	P value
Age, years ^a	73.1 (67.7, 79.9)	72.2 (67.5, 79.8)	73.3 (71.6, 79.2)	76.7 (70.4, 81.1)	.75
Male	51 (52%)	30 (44%)	5 (39%)	16 (94%)	<.001
Race					.10
Asian	48 (49%)	38 (55%)	3 (23%)	7 (41%)	
NHPI	19 (19%)	14 (20%)	3 (23%)	2 (12%)	
White, Black, Not Reported	32 (32%)	17 (25%)	7 (54%)	8 (47%)	
Length of stay, days ^a	4.08 (2.92, 6.36)	3.90 (2.77, 5.77)	9.89 (4.95, 13.1)	4.00 (3.00, 6.00)	.003
ACE duration, days ^a	1.95 (0.95, 3.28)	2.18 (1.27, 4.22)	1.95 (1.24, 3.82)	0 (0, 0)	.47
AMPAC at admission ^a	20.0 (17.0, 22.0)	20.0 (17.0, 22.0)	19.0 (16.0, 22.0)	19.0 (18.0, 22.0)	.86
AMPAC at discharge ^a	22.0 (19.0, 23.0)	22.0 (20.0, 23.0)	20.0 (19.0, 23.0)	22.0 (19.0, 23.0)	.39
AMPAC difference ^a	1.00 (0, 3.00)	1.00 (0, 3.00)	0 (-2.00, 3.00)	1.00 (0, 3.00)	.34
Discharge disposition					.002
Home	83 (84%)	62 (90%)	6 (46%)	15 (88%)	
Nursing home or rehabilitation facility	11 (11%)	6 (9%)	4 (31%)	1 (6%)	
Expired or AMA	5 (5%)	1 (1%)	3 (23%)	1 (6%)	

ACE: Acute Care for Elders, AMA: Against Medical Advice, AMPAC: Activity Measure for Post-Acute Care, NHPI: Native Hawaiian or Pacific Islander
^aValues are median (25%ile, 75%ile)

Table 2. Baseline Characteristics and Results of the Geriatric Inpatient Study Population by Race

	Asian (n=48) No. (%)	NHPI (n=19) No. (%)	White, Black or Not reported (n=32) No. (%)	Overall (N=99) No. (%)	P value
Age, years ^a	75.2 (70.4, 82.1)	68.6 (62.5, 71.3)	75.6 (67.0, 79.7)	73.1 (67.7, 79.9)	.003
Male	24 (50%)	10 (53%)	17 (53%)	51 (52%)	.96
ACE Group					.10
Completed	38 (79%)	14 (74%)	17 (53%)	69 (70%)	
Declined	7 (15%)	2 (11%)	8 (25%)	17 (17%)	
Early Termination	3 (6%)	3 (16%)	7 (22%)	13 (13%)	
Length of stay, days ^a	3.82 (2.51, 4.97)	4.86 (3.75, 6.75)	5.27 (3.49, 10.2)	4.08 (2.92, 6.52)	.033
ACE duration, days ^a	1.80 (0.985, 3.20)	2.30 (1.33, 4.18)	1.35 (0.000521, 3.69)	1.95 (0.950, 3.28)	.34
AMPAC at admission ^a	20.0 (18.0, 22.0)	20.0 (17.0, 23.5)	19.5 (17.0, 22.0)	20.0 (17.0, 22.0)	.79
AMPAC at discharge ^a	22.0 (19.0, 23.0)	23.0 (20.0, 24.0)	22.0 (19.8, 23.0)	22.0 (19.0, 23.0)	.42
AMPAC difference ^a	1.00 (0, 3.00)	1.00 (0, 6.00)	1.00 (0, 3.00)	1.00 (0, 3.00)	.73
Discharge disposition					.32
Home	40 (83%)	17 (90%)	26 (81%)	83 (84%)	
Nursing home or rehabilitation facility	6 (13%)	0 (0%)	5 (16%)	11 (11%)	
Expired or AMA	2 (4%)	2 (11%)	1 (3%)	5 (5%)	

ACE: Acute Care for Elders, AMA: Against Medical Advice, AMPAC: Activity Measure for Post-Acute Care, NHPI: Native Hawaiian or Pacific Islander
^aValues are median (25%ile, 75%ile)

nal AMPAC prior to discharge also did not show any statistical difference ($P=.42$). Home discharges were not significantly different across race: 83% Asian, 90% NHPI and 81% White or other race ($P=.32$).

Post-hoc statistical analysis using Kruskal-Wallis Test was conducted to compare the LOS among enrollment groups within the Asian and NHPI subpopulations. Asians had shorter median LOS in the Completed group compared to the Early Termination group ($P=.030$), but there was no

significant LOS difference among enrollment groups in the NHPI population. (Table 3, Table 4).

Discussion

The incorporation of Asian and NHPI individuals into geriatric research is an unmet need in the literature.^{15,16} To the best of current evidence, no studies to date have focused on deconditioning and rehabilitation in an Asian and NHPI population, with only 1 registry study focusing on de-

Table 3. Subgroup Analysis Comparison of LOS Among Asian and NPHI Patients

race	test	statistic	P-value
Asian	Kruskal-Wallis	5.33	.069
NHPI	Kruskal-Wallis	.18	.91

LOS: length of stay, NHPI: Native Hawaiian or Pacific Islander

Table 4. Subgroup Analysis Comparison of LOS Among Asian and NPHI by ACE Group

race	comparison	z	P value ^a
Asian	Completed - Declined	.719	.23
Asian	Completed - Early Term	-2.10	.035
Asian	Declined - Early Term	-2.25	.035
NHPI	Completed - Declined	.369	.71
NHPI	Completed - Early Term	-.166	.43
NHPI	Declined - Early Term	-.421	>.99

LOS: length of stay, NHPI: Native Hawaiian or Pacific Islander

^aKruskal-Willis Test

mentia in this population.¹⁷ Major trials and systematic reviews studying the impact of inpatient geriatric units have largely neglected these populations. In every study evaluating dedicated inpatient geriatric units, NHPI were not included among the race categories. For example, the landmark study conducted by Landefeld et al in 1995 evaluating one of the first dedicated inpatient geriatric units only enrolled White or Black individuals. More recent clinical trials by Flood et al and Conunsell et al published in 2013 and 2015 respectively enrolled cohorts composed of 99-100% Black or White patients.^{5,8,18} Despite their proven benefits for White and Black patients, there are multiple cultural and socio-economic factors that make untested extrapolation of these results to Asians and NHPI inappropriate.

Previous randomized clinical trials and meta-analyses have demonstrated the benefit of Geriatric Evaluation and Management Units (GEMU) on functional status.^{19,20} However, the current study did not find a significant difference in AMPAC scores on admission or discharge among ACE groups. This may be attributed to the inclusion criteria of an AMPAC score of 18 or greater, which limits this study population to patients with higher baseline functional status, in addition to the enrollment period being limited to only 16 weeks.

The overall findings suggest that completion of the ACE protocol may be associated with reduced LOS among Asian populations. This observation appears to be primarily driven by the significant difference in LOS between the Early Termination group and the Completed/Declined groups within the Asian subpopulation identified in the subgroup analysis. In this study, NHPI patients had a longer LOS compared with Asian patients and were admitted to the geriatric unit at a significantly younger mean age, which may indicate a generally less healthy population that is less responsive to the potential effects of the ACE protocol. Given the small sample size of this study, events such as death or discharge against medical advice in the Early Termination

group may have disproportionately influenced group-level LOS differences. This may partly explain the absence of a clear difference in LOS across the NHPI enrollment groups. In contrast, Asian patients had the shortest LOS and a higher mean age at admission compared with NHPI patients. The ACE protocol may therefore have had a greater observable impact among Asian patients who completed the program compared with those who terminated participation early. Alternatively, unmeasured confounding factors or comorbidities may have resulted in the Early Termination group representing an inherently less healthy population, thereby contributing to the observed higher LOS.

NHPI participants in this study were enrolled into the ACE program at a younger age compared to other racial groups. Previous studies suggest that NHPI patients experience functional limitations at a younger age, and demonstrate earlier evidence of epigenetic aging compared to Whites and Asians.^{4,21} Unstable financial resources, limited access to housing, and poor social support often challenge these populations and are associated with decreased rate of functional recovery and successful rehabilitation following hospitalization.²² These social determinants lead to disproportionately higher rates of disability in managing activities of daily living, more severe declines in function and cognition after acute illnesses, and higher rates of hospitalization at younger ages, thus prompting more urgent enrollment into preventative rehabilitation programs.²³ The current data provide valuable targets for multidisciplinary team members to focus increased attention and sensitivity toward these populations.

This study has several limitations. First, the small sample size limits the generalizability of the findings and the precision of subgroup analyses. Second, comparing patients who completed the ACE program with those who withdrew early or were transferred to another unit, rather than using randomized groups, introduces potential confounding bias.

Patients who withdrew or were transferred may have had more severe illness at admission, which could have contributed to the longer LOS observed in the Early Termination group. Conversely, the similar LOS and rates of home discharge between the Completed and Declined groups may reflect baseline differences in patient characteristics. Patients in the Declined group may have had milder illness at admission and therefore perceived less benefit from participation in the ACE program. An imbalance in distribution by sex was also observed, with a higher proportion of male patients in the Declined group. The reason for this difference is unclear but may reflect demographic characteristics of the source population or potential differences in health-seeking behaviors. Additionally, the intervention period lasted only 16 weeks, which is shorter than in prior studies (around 6 months to 1 year) and may have limited the ability to detect significant effects.⁵ Finally, chronic medical conditions and social determinants of health were not adjusted for at baseline, which may have introduced additional selection bias. Future studies may further evaluate potential confounding from socioeconomic factors, more detailed ethnic subgroup classifications, and immigration status.

This pilot study provides insight to the effects of specialized inpatient geriatrics units among Asian Americans and NHPI people. The findings of this study bring insight

to the efficacy of this intervention in Asians and NHPI, a patient population that is frequently underrepresented in research.²⁴ The ACE protocol may be associated with shorter hospital LOS and increased rates of home-discharge for this diverse patient population. Further research utilizing larger patient samples, as well as randomization and control groups are warranted to better assess the protocol's long-term impact on discharge outcomes.

.....

Acknowledgments

None

Disclosure/Conflict of Interest Statement

The authors declare that there are no conflicts of interest or competing interests that could have influenced the research, authorship, or publication of this article.

Submitted: May 21, 2025 PDT. Accepted: May 07, 2026 PDT.

Published: July 01, 2026 PDT.

References

1. Kim YS, Liddell C, Kamita, Akamine N. Population and economic projections for the state of Hawaii to 2050. Accessed April 26, 2025. https://files.hawaii.gov/dbedt/economic/data_reports/LRF/2050-long-range-projections.pdf
2. Surkan MJ, Gibson W. Interventions to mobilize elderly patients and reduce length of hospital stay. *Can J Cardiol*. 2018;34(7):881-888. doi:10.1016/j.cjca.2018.04.033
3. Lee YJ, Braun KL, Wu YY, et al. Physical activity and health among Native Hawaiian and other Pacific Islander older adults. *J Aging Heal*. 2022;34(1):120-129. doi:10.1177/08982643211032468
4. Maunakea AK, Phankitnirundorn K, Peres R, et al. Socioeconomic status, lifestyle, and DNA methylation age among racially and ethnically diverse adults. *JAMA Netw Open*. 2024;7(7):e2421889. doi:10.1001/jamanetworkopen.2024.21889
5. Counsell SR, Holder CM, Liebenauer LL, et al. Effects of a multicomponent intervention on functional outcomes and process of care in hospitalized older patients: A randomized controlled trial of Acute Care for Elders (ACE) in a community hospital. *J Am Geriatr Soc*. 2000;48(12):1572-1581. doi:10.1111/j.1532-5415.2000.tb03866.x
6. Smith M, Van N, Roberts A, et al. Disparities in Alzheimer disease and mild cognitive impairment among Native Hawaiians and Pacific Islanders. *Cogn Behav Neurol*. 2021;34(3):200-206. doi:10.1097/wnn.0000000000000279
7. Farber JI, Korc-Grodzicki B, Du Q, Leipzig RM, Siu AL. Operational and quality outcomes of a mobile acute care for the elderly service. *J Hosp Med*. 2011;6(6):358-363. doi:10.1002/jhm.878
8. Landefeld CS, Palmer RM, Kresevic DM, Fortinsky RH, Kowal J. A randomized trial of care in a hospital medical unit especially designed to improve the functional outcomes of acutely ill older patients. *N Engl J Med*. 1995;332(20):1338-1344. doi:10.1056/nejm199505183322006
9. Palmer RM, Landefeld CS, Kresevic D, Kowal J. A medical unit for the acute care of the elderly. *J Am Geriatr Soc*. 1994;42(5):545-552. doi:10.1111/j.1532-5415.1994.tb04978.x
10. Haley SM, Coster WJ, Andres PL, et al. Activity outcome measurement for postacute care. *Méd Care*. 2004;42(1):l-49. doi:10.1097/01.mlr.0000103520.43902.6c
11. Ngo-Metzger Q, Legedza ATR, Phillips RS. Asian Americans' reports of their health care experiences. *J Gen Intern Med*. 2004;19(2):111-119. doi:10.1111/j.1525-1497.2004.30143.x
12. Kirby JB, Berdahl TA, Stone RAT. Perceptions of patient-provider communication across the six largest Asian subgroups in the USA. *J Gen Intern Med*. 2021;36(4):888-893. doi:10.1007/s11606-020-06391-z
13. Nilchaikovit T, Hill JM, Holland JC. The effects of culture on illness behavior and medical care Asian and American differences. *Gen Hosp Psychiatry*. 1993;15(1):41-50. doi:10.1016/0163-8343(93)90090-b
14. Kawakami KL, Muneoka S, Burrage RL, Tanoue L, Haitzuka K, Braun KL. The lives of Native Hawaiian elders and their experiences with healthcare: qualitative analysis. *Front Public Heal*. 2022;10:787215. doi:10.3389/fpubh.2022.787215
15. Taira DA, Ranken MS, Seto BK, et al. Representation of Native Hawaiian and Pacific Islander individuals in clinical trials. *JAMA Netw Open*. 2024;7(10):e2442204. doi:10.1001/jamanetworkopen.2024.42204
16. Wu B, Qi X. Addressing health disparities among older Asian American populations: research, data, and policy. *Public Polic Aging Rep*. 2022;32(3):105-111. doi:10.1093/ppar/prac015
17. Grill JD, Tsoh JY, Nam B, et al. Increasing representation of Asian American, Native Hawaiian, and Pacific Islander communities in aging, dementia, and caregiving research: An update from the CARE registry. *Alzheimer's Dement*. 2025;21(4):e70144. doi:10.1002/alz.70144
18. Flood KL, MacLennan PA, McGrew D, Green D, Dodd C, Brown CJ. Effects of an acute care for elders unit on costs and 30-day readmissions. *JAMA Intern Med*. 2013;173(11):981-987. doi:10.1001/jamainternmed.2013.524
19. Cohen HJ, Feussner JR, Weinberger M, et al. A controlled trial of inpatient and outpatient geriatric evaluation and management. *N Engl J Med*. 2002;346(12):905-912. doi:10.1056/nejmsa010285

20. Bachmann S, Finger C, Huss A, Egger M, Stuck AE, Clough-Gorr KM. Inpatient rehabilitation specifically designed for geriatric patients: systematic review and meta-analysis of randomised controlled trials. *BMJ*. 2010;340(apr202):c1718. doi:[10.1136/bmj.c1718](https://doi.org/10.1136/bmj.c1718)

21. Walter CS, Narcisse MR, Vincenzo JL, McElfish PA, Felix HC. Description of variation in age of onset of functional limitations of Native Hawaiian and Pacific Islanders compared to other racial and ethnic groups. *Int J Environ Res Public Heal*. 2021;18(5):2445. doi:[10.3390/ijerph18052445](https://doi.org/10.3390/ijerph18052445)

22. Auais M, Al-Zoubi F, Matheson A, Brown K, Magaziner J, French SD. Understanding the role of social factors in recovery after hip fractures: A structured scoping review. *Heal Soc Care Community*. 2019;27(6):1375-1387. doi:[10.1111/hsc.12830](https://doi.org/10.1111/hsc.12830)

23. Jain S, Murphy TE, O'Leary JR, Leo-Summers L, Ferrante LE. association between socioeconomic disadvantage and decline in function, cognition, and mental health after critical illness among older adults: A cohort study. *Ann Intern Med*. 2022;175(5):644-655. doi:[10.7326/m21-3086](https://doi.org/10.7326/m21-3086)

24. Taparra K, Pellegrin K. Data aggregation hides Pacific Islander health disparities. *Lancet*. 2022;400(10345):2-3. doi:[10.1016/s0140-6736\(22\)01100-x](https://doi.org/10.1016/s0140-6736(22)01100-x)