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# Parity of Patient and Provider Perceptions of Omics-Integrated Military Medicine

Cubby L. Gardner, Maj, USAF, PhD , FNP-C [1]; Megan D. Maxwell, MS, LCGC[2]; Rebecca L. Hsu, BA[3]; Devan Petersen, MPH[3]; Stacey Pereira, PhD[3]; Jill O. Robinson, MA[3]; Amy L. McGuire, JD, PhD[3]; Robert C. Green, MD, MPH[2,4,5,6] for the MilSeq Project*

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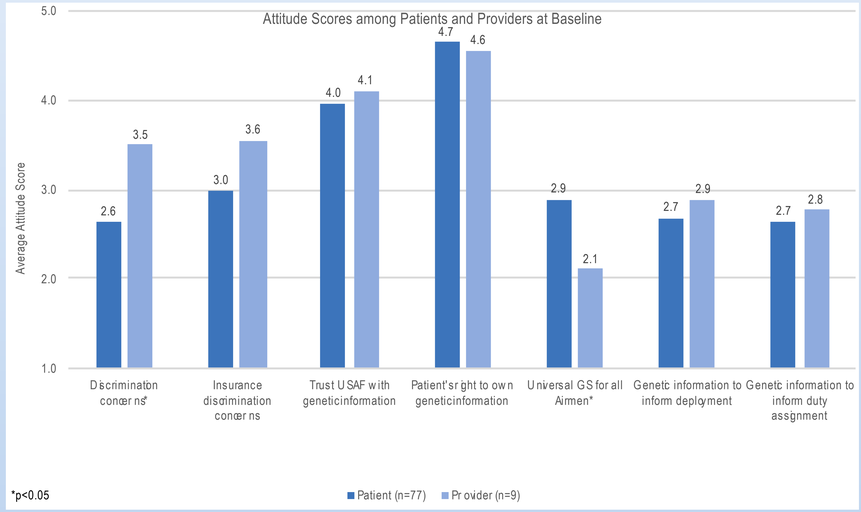
## Background

- Genomic sequencing (GS) technologies are becoming available to optimize the safety and efficacy of pharmaceutical treatments, and to resolve the diagnostic odyssey in complex genetic disease presentations.
- Healthcare providers (HCPs) in the civilian sector report differing levels of confidence with genomic integration into routine healthcare.
- Access, privacy, and potential discrimination have been cited as factors influencing the decision to undergo GS in the lay population.
- Genomic integration into military medicine includes considerations that are distinct from a civilian cohort and therefore data are not directly comparable.
- The MilSeq Project: Enabling Personalized Medicine through Exome Sequencing in the U.S. Air Force (USAF) is a pilot proof-of-concept study designed to explore the knowledge, attitudes and perceptions of both patient- and provider-participants regarding the implementation of genomic medicine in the Air Force.
- This brief communication describes and compares the knowledge, attitudes and perceptions of active-duty Airmen patients and HCPs about the value and impact of GS in the Military Health System.

## Methods

- Prospective cohort design with mixed methods
  - Nonrandomized convenience sample of Airmen patients and HCPs recruited by flyer, newsletter, social media posting, group announcement and personal advertisement in proximity to primary care clinics.
- Both groups were asked to complete a baseline survey in electronic format, designed to assess knowledge, attitudes and perceptions of GS. Patients and HCPs responded on a Likert-type scale anchored on one end with 1="Strongly disagree" and on the other end with 5="Strongly agree."
  - Patient baseline survey concluded with an invitation to participate in a second phase that involved clinical whole exome sequencing (WES).
  - HCPs recruited for Phase II result disclosure took a baseline survey and attended a genetic counselor-led primary care genomics training session as a prerequisite to provide results to patient-participants.
- We compared Phase I baseline survey responses of patients and providers where similar questions were asked of each group.
- Because the data did not meet assumptions for Independent Samples T-Test, a Mann-Whitney U Test was run to determine if there were differences in attitude scores between patients and HCPs.

## Results




- The mean attitude score for the question, "I worry that I [my patients] will not be able to get insurance in the future if my [their] genetic information is not protected," was not significantly higher (p=0.186) for patients (2.99 [±1.16]) than for HCPs (3.56 [±1.13]).
- The mean attitude score for the question, "I worry that I [my patients] will be discriminated against if my [their] genetic information is not protected," was significantly higher (p=0.019) for HCPs (3.50 [±0.93]) than for patients (2.64 [±0.96]).
- The mean attitude score for the question, "I [my patients] can trust the Air Force with my [their] genetic information," was not significantly higher (p=0.578) for HCPs (4.11 [±0.78]) than for patients (3.97 [±0.69]).
- The mean attitude score for the question, "I [my patients] have a right to know my [their] genetic information," was not significantly higher (p=0.581) for patients (4.65 [±0.48]) than for HCPs (4.56 [±0.53]).
- The mean attitude score for the question, "I think that the Air Force should require all Airmen to undergo genomic sequencing," was significantly higher (p=0.009) for patients (2.90 [±0.88]) than for HCPs (2.11 [±0.78]).
- The mean attitude score for the question, "I think the Air Force should use genetic information to make decision about deployment," was not significantly higher (p=0.534) for HCPs (2.89 [±0.78]) than for patients (2.69 [±0.75]).
- The mean attitude score for the question, "I think the Air Force should use genetic information to make decisions about duty assignments," was not significantly higher (p=0.845) for HCPs (2.78 [±0.67]) than for patients (2.65 [±0.74])

## Results

| Health Care Provider Characteristics | |
|---|---|
| Characteristic – N (%) unless otherwise noted | N=9 |
| *Age (n=8)* | |
| Mean in years (SD) | 39.4 (±8.8) |
| *Gender* | |
| Male | 6 (67%) |
| Female | 3 (33%) |
| *Race/Ethnicity* | |
| Hispanic or Latino | 0 (0%) |
| Non-Hispanic White | 5 (56%) |
| Non-Hispanic Other* | 4 (44%) |
| *Years in Practice* | |
| < 1 | 1 (11%) |
| 1-10 | 7 (78%) |
| 21-30 | 1 (11%) |
| *Medical Specialty* | |
| Family Medicine | 3 (33%) |
| Internal Medicine | 5 (56%) |
| Pediatrics/Preventative Medicine | 1 (11%) |
| *Genetics Training* | |
| No | 8 (89%) |
| Yes | 1 (11%) |

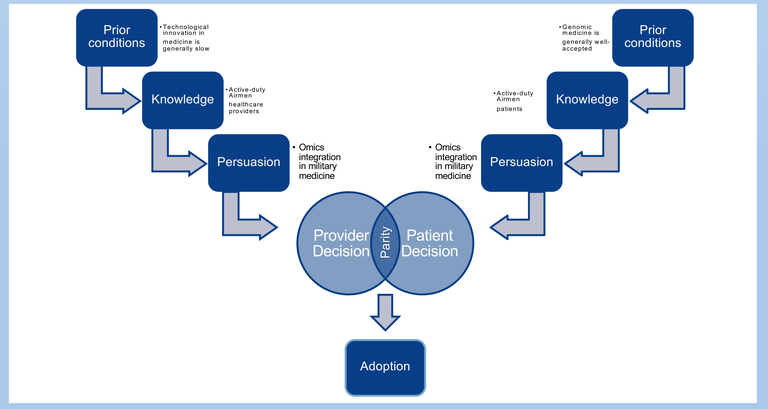
* Non-Hispanic Other includes African American, Asian, and Multi-Racial

| Airmen Characteristics | |
|---|---|
| Characteristic – N (%) unless otherwise noted | N=77 |
| *Age (n=72)* | |
| Mean in years (SD) | 34.6 (±7.9) |
| *Gender* | |
| Male | 41 (53%) |
| Female | 36 (47%) |
| *Race/Ethnicity* | |
| Hispanic or Latino | 12 (16%) |
| Non-Hispanic White | 51 (66%) |
| Non-Hispanic Other* | 10 (13%) |
| Prefer Not to Answer | 4 (5%) |
| *Education* | |
| Did not graduate from college | 30 (39%) |
| College graduate or higher | 47 (61%) |
| *Annual Household Income* | |
| ≤ $99,999 | 53 (69%) |
| ≥ $100,000 | 24 (31%) |
| *Relationship Status (n=76)* | |
| Not Married | 22 (29%) |
| Married | 54 (71%) |

* Non-Hispanic Other includes African American, Asian, Multi-Racial, and Other

## Discussion

- Baseline attitude scores did not differ significantly in terms of: fear of future insurability, trust for USAF handling of genetic information, the patient's right to genetic information, and USAF use of genetic information for duty assignment and deployment selection.
- HCP responses differed significantly from patient responses for 2 questions: HCPs more strongly worried about future discrimination should genetic information not be protected and more strongly disagreed with an absolute requirement of GS.

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