



U.S. DEPARTMENT OF
ENERGY

Republic of the Marshall Islands Special Medical Care and Logistics Program Activities, FY 2020- 2021

Report to Congress
December 2021

United States Department of Energy
Washington, DC 20585

Message from the Associate Under Secretary for Environment, Health, Safety and Security

The U.S. Department of Energy's Republic of the Marshall Islands Special Medical Care and Logistics Program (Special Medical Care Program) provides medical examinations and treatment for potential radiation-related cancers, and logistical support associated with providing those services, for members of the population of the Rongelap and Utrik Atolls who were exposed to radiation as the result of the 1954 U.S. thermonuclear weapons test, which was code-named "Castle Bravo." **There were 91 individuals eligible for participation in the program as of October 1, 2019, the beginning of fiscal year (FY) 2020.**

This report provides information regarding the expenditure of funds during FY 2020 and FY 2021 for the Special Medical Care Program, as directed by Title 48, United States Code, Section 1933(k).

This report is being provided to the following Members of Congress:

- **The Honorable Patrick Leahy**
Chairman, Senate Committee on Appropriations
- **The Honorable Richard Shelby**
Vice Chairman, Senate Committee on Appropriations
- **The Honorable Rosa L. DeLauro**
Chairwoman, House Committee on Appropriations
- **The Honorable Kay Granger**
Ranking Member, House Committee on Appropriations
- **The Honorable Dianne Feinstein**
Chairwoman, Subcommittee on Energy and Water Development
Senate Committee on Appropriations
- **The Honorable John Kennedy**
Ranking Member, Subcommittee on Energy and Water Development
Senate Committee on Appropriations
- **The Honorable Marcy Kaptur**
Chairwoman, Subcommittee on Energy and Water Development
House Committee on Appropriations

- **The Honorable Michael K. Simpson**
Ranking Member, Subcommittee on Energy and Water Development
House Committee on Appropriations

If you have any questions or need additional information, please contact Mr. Kevin Dressman, Director, Office of Health and Safety, within the Office of Environment, Health, Safety and Security, at (301) 903-5144; or Ms. Katie Donley, Deputy Director for External Coordination, Office of the Chief Financial Officer, at (202) 586-0176.

Sincerely,

Matthew B. Moury
Associate Under Secretary for
Environment, Health, Safety and Security

Executive Summary

The purpose of this report is to provide information regarding the expenditure of funds during fiscal years (FY) 2020-2021 for the Department of Energy's (DOE) Republic of the Marshall Islands (RMI) Special Medical Care and Logistics Program (Special Medical Care Program), as directed by Title 48, United States Code, Section 1933(k).

The Special Medical Care Program, administered through DOE's Office of Environment, Health, Safety and Security, provides for medical examinations and treatment for potential radiation-related cancers, and logistical support associated with providing those services, for members of the populations of the Rongelap and Utrik Atolls who were exposed to radiation resulting from the March 1, 1954, U.S. thermonuclear weapons test, which was code-named "Castle Bravo."

Medical care is provided in the form of annual comprehensive medical screening examinations for cancer, referrals to specialists for further testing, as needed, cancer treatment, and follow-up examinations by specialists. The care provided includes local community-based medical services in the RMI; medical care at locations in Hawaii for services that are not available in the RMI; and medical care in the continental United States (CONUS) for patients who reside there. The Special Medical Care Program also provides support for travel, lodging, and per diem expenses for program participants and their escorts traveling in the RMI, Hawaii, and the CONUS.

There were 253 people on the Rongelap and Utrik Atolls during the Castle Bravo test in 1954. There were 91 individuals eligible for participation in the program as of October 1, 2019, the beginning of fiscal year (FY) 2020. At the beginning of FY 2021, this had reduced to 85 individuals, with an average age of 71 years, eligible for participation in the Special Medical Care Program. The following summarizes FY 2020-2021 medical services activities/results for the Special Medical Care Program:

- Twenty patients in FY 2020 and eight patients in FY 2021 received a full annual comprehensive medical screening examination. Due to COVID-19/Dengue Fever Outbreak travel restrictions initiated by the RMI National government, partial medical screening examinations were offered for 71 patients in FY 2020 and 73 patients in FY 2021, while four patients in FY 2021 could not be contacted. Full exams could not always be completed because imaging services, such as ultrasounds, mammography and colonoscopies, are sometimes not available in the Republic of the Marshall Islands (RMI).
- Sixteen in FY 2020 and 32 in FY 2021 were not examined for reasons including patient refusal, death prior to annual examination, and postponement due to travel restrictions enacted by the RMI to prevent the spread of the Covid-19/Dengue Fever outbreaks. Of the 75 patients examined in FY 2020, one was referred to specialists for suspicion of cancer. Leukemia was confirmed in subsequent examinations with treatment continuing into FY 2021. Of the 53 patients examined in FY 2021, three were referred to specialists for

suspicion of cancer. Lung cancer was confirmed for one referral during subsequent examinations.

Of the 91 eligible patients in the program at the beginning of FY 2020; six died in FY 2020. No deaths were attributed to cancer; however, two death certificates have not been provided by their families. Of the 85 remaining eligible patients in the program at the beginning of FY 2021; Eight died in FY 2021. Two deaths involved varying causes for patients being treated for cancer; however, five death certificates have not been provided by their families.

Total program costs in FY 2020 for medical care and logistical support services were \$1,419,951. Total program costs in FY 2021 for medical care and logistical support services were \$3,192,723. Total program costs are currently projected as decreasing in FY 2022 to approximately \$1,500,000, as there were two cancer cases in FY 2021 that were costly.



REPUBLIC OF THE MARSHALL ISLANDS SPECIAL MEDICAL CARE AND LOGISTICS PROGRAM

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I. Legislative Language

The Department of Energy (DOE) is directed by Title 48 U.S. Code (U.S.C.) Section 1933(k) to:

[P]rovide the Committees on Appropriations of the House and Senate with a report by December 1 of each fiscal year detailing how funds were spent during the previous fiscal year for the special medical care and logistical support program for Rongelap and Utrik ... referenced in Section 103(h)[(1)] of Public Law 99-239 [48 U.S.C. 1903(h)(1)]. The report shall also specify the anticipated needs during the current and following fiscal years in order to meet the radiological health care and logistical support program for Rongelap and Utrik....

Title 48 U.S.C. 1903(h)(1) states:

Notwithstanding any other provision of law, upon the request of the Government of the Marshall Islands, the President (either through an appropriate department or agency of the United States or by contract with a United States firm) shall continue to provide special medical care and logistical support thereto for the remaining 174 members of the population of Rongelap and Utrik who were exposed to radiation resulting from the 1954 United States thermonuclear "Bravo" test, pursuant to Public Laws 95–134 and 96–205. Such medical care and its accompanying logistical support shall total \$22,500,000 over the first 11 years of the Compact.

II. Introduction

DOE's Republic of the Marshall Islands (RMI) Special Medical Care and Logistics Program (Special Medical Care Program), which is administered through DOE's Office of Environment, Health, Safety and Security, provides for medical examinations and treatment for potential radiation-related cancers for members of the populations of Rongelap Atoll and Utrik Atoll who were exposed to radiation resulting from the March 1, 1954, U.S. thermonuclear weapons test, which was code-named "Castle Bravo."

Medical and logistical services for the Special Medical Care Program are provided by International Outreach Services (IOS), a Hawaii-based 501(c)(3) non-profit organization with which DOE has a cooperative agreement. Program funding is used to provide for: (1) annual medical screening examination costs, including salaries for healthcare professionals and administrative staff; pharmaceuticals; medical supplies and equipment; laboratory, imaging, and physician services; aircraft and charter vessels for patient transportation inside the RMI; medical malpractice insurance; travel, lodging, and per diem expenses for patients and their escorts traveling to clinics in the RMI, Hawaii, or the continental U.S. (CONUS); and medical personnel travel in support of annual screening exams; (2) medical referral costs, including medical services for patients referred to specialists for suspicion of cancer or follow-up care, as

well as travel, lodging, and per diem expenses for patients and their escorts, and other travel-related costs; and (3) medical logistical services and infrastructure costs necessary to support the operation of the Special Medical Care Program, including lease expenses and utilities for the Majuro clinic; facility maintenance and repair services; vehicle maintenance and repair services; supplies and equipment; medical and management personnel travel not directly related to medical screening examinations (e.g., program oversight, meetings, etc.); and continuing medical education.

In fulfilling its mission to provide healthcare and logistical support for the people of Rongelap and Utrik, the Special Medical Care Program must address several issues. One such issue is that most participants in the program have other medical conditions that are outside the scope of the program. For example, over 90 percent of the patient population in the Special Medical Care Program have cardiometabolic syndrome, which consists of adult-onset diabetes, hypertension, and high cholesterol that are covered by other, non-DOE medical care programs, including the “Section 177 Healthcare Program” (also known as the Four Atoll Healthcare Program) and the RMI national healthcare program. The Section 177 Healthcare Program provides basic healthcare services for the people of the Bikini, Eniwetok, Rongelap, and Utrik Atolls who were impacted by the U.S. nuclear weapons testing program. Although the Special Medical Care Program does not provide complete care for cardiometabolic syndrome conditions, the program’s physicians provide basic supportive care and refer patients with these conditions to the Section 177 Healthcare Program and the RMI national healthcare system.

In addition, there are very few physicians who speak Marshallese or who understand the cultural context and social rules of conducting medical examinations of Marshallese patients. The language barrier makes it difficult for non-Marshallese-speaking physicians to communicate with these patients. To help with the language barrier and provide personal assistance and monitoring, given the ages and physical conditions of the patients, a family member or companion who speaks English typically escorts the patients who are referred to medical facilities outside the RMI or to specific examination sites within the RMI. The escorts receive the same travel and per diem benefits as the patients.

There were 253 people on the Rongelap and Utrik Atolls during the “Castle Bravo” test in 1954. On October 1, 2019, the beginning of FY 2020, 91 individuals were eligible for participation in the Special Medical Care Program. At the beginning of FY 2021, 85 remaining individuals were eligible for participation in the Special Medical Care Program. Thirty of the 91 individuals resided in the U.S. in FY 2020, increasing to 31 in FY 2021, and the Special Medical Care Program provided for care for these individuals within their own communities.

This report provides a description of the services provided to program participants; general results of the examinations performed; an overview of the logistics involved in administering the Special Medical Care Program; and a summary of program expenditures.

III. Medical Services

The Special Medical Care Program provides annual, comprehensive medical screening examinations for potential radiation-related cancers, referrals to specialists for further testing as needed, cancer treatment, and follow-up examinations by specialists.

The annual screening examination consists of a physical examination, including a thyroid palpation; gender-specific examinations, such as mammogram and rectal exams; and laboratory tests, which include, but are not limited to, complete blood count (CBC), comprehensive metabolic panel (CMP), hemoglobin A1c, urinalysis, baseline electrocardiogram (EKG), liver cancer screening, chest x-ray/CT lung cancer screening, thyroid ultrasound, and periodic colonoscopy. Each patient's medical records and personal history are reviewed as part of the annual exam. Any suspicious conditions for cancer are discussed with the patient and referrals are made for further evaluation and management, as needed. Each examination is conducted in accordance with appropriate guidelines and recommendations, such as those provided by the American Cancer Society, the American College of Physicians, and the U.S. Preventive Services Task Force (USPSTF).

Referral patients receive additional screening and treatment, as needed, by an oncologist and other physicians who may be involved in his or her cancer diagnosis and treatment. Treatment continues until a patient is in remission or has reached end of care. Each patient is engaged with his or her treatment plan and provided with access to additional specialists, including survivorship counseling.

Annual Medical Screening Examinations

The 91 individuals who were eligible for participation in the Special Medical Care Program in FY 2020 were scheduled for annual medical screening examinations. The results of the FY 2020 annual medical screening examinations are as follows:

- 20 patients received complete annual medical screening examinations.
- 71 patients were offered partial annual medical screening examinations, consisting of the full elements of the annual exam, except for any imaging services (thyroid ultrasound, mammogram, or periodic coloscopy) which was not available at the time in the Republic of the Marshall Islands.
- 16 patients were not examined in FY 2020 for the following reasons:
 - 4 out of the 6 patient deaths in FY2020 died (not from cancer) prior to receiving an examination
 - 12 patients refused exams

Thus, in FY 2020, 82 percent of eligible patients received an annual examination through the Special Medical Care Program.

The 85 individuals who were eligible for participation in the Special Medical Care Program in FY 2021 were scheduled for annual medical screening examinations. The results of the FY 2021 annual medical screening examinations are as follows:

- 8 patients received complete annual medical screening examinations.
- 45 patients were offered partial annual medical screening examinations, consisting of the full elements of the annual exam, except for any imaging service (thyroid ultrasound, mammogram, or periodic coloscopy) which was not available at the time in the Republic of the Marshall Islands.
- 32 patients were not examined in FY 2021 for the following reasons:
 - 6 out of the 8 patient deaths in FY2021 died (not from cancer) prior to receiving an examination
 - 5 patients refused exams
 - 14 were offered exams but had not completed them prior to the end of FY2021
 - 4 could not be contacted
 - 3 were unable to travel to Majuro due to transportation setbacks from remote atolls

Thus, in FY 2021, 62 percent of eligible patients received an annual examination through the Special Medical Care Program.

In addition to conducting exams at the clinics available in Majuro (the capital of the Marshall Islands) and Kwajalein that serve eligible patients residing in Majuro and on Ebeye Island (which is part of Kwajalein Atoll), when needed, program physicians traveled to patients' homes to examine the patients and interact with them and other family members in the household. Quarterly home visits were also performed by a program physician for all eligible patients residing in Majuro and Ebeye Island as a courtesy follow-up. No program medical staff traveled to Utrik Atoll to visit patients who reside on the atoll due to the RMI Dengue Fever/COVID-19 travel restrictions.

Thyroid disease is of special concern for the Special Medical Care Program because of exposure of the Marshallese people on Rongelap and Utrik to radioactive iodine in fallout from the Castle Bravo test. Traditional manual examination of the thyroid is augmented by ultrasound procedures, which are used at the recommendation of the American Thyroid Association. Each participant in the Special Medical Care Program is offered a thyroid ultrasound examination annually by the program endocrinologist; patients residing within the U.S. receive examinations through a clinic near their home. Ultrasounds are also used when abnormalities are identified.

To date, there have been 18 thyroid cancers diagnosed among participants in the Special Medical Care Program. Seventeen of these cases were treated in 1989 or before, dating back to the 1960's. The last case, treated in 2018, was the first case that had been seen in 29 years of monitoring since 1989.

Other medical services, such as pharmacy, laboratory, radiology, and mammography services, were also provided to program participants, as needed.

Medical Referrals

In late FY 2020, a program participant was referred to The Queen's Medical Center (QMC) in Honolulu, Hawaii for suspicion of leukemia; this individual was brought to Hawaii from Majuro via medevac. Leukemia was confirmed during examination in Hawaii. Treatment continued into FY 2021 at QMC, and the patient was transferred for specialty care to the Mayo Clinic in Phoenix, AZ.

One program participant was referred to Honolulu in FY2021 for suspicion of lung cancer which was confirmed during examination in Hawaii, and followed by cancer treatment at QMC.

One program participant was referred to Honolulu for suspicion of breast cancer; biopsy returned negative for cancer.

One program participant was referred to Honolulu for continued high prostate specific antigen (PSA) laboratory results to rule out prostate cancer; biopsy returned negative for cancer.

Follow-up Medical Examinations

All follow-up medical examinations for previously referred patients were postponed in FY 2021 due to COVID-19 travel restrictions established by the RMI National Government and State of Hawaii. Follow up examinations were provided by telemedicine. One program participant due for a six month follow up examination declined travel to Honolulu. A follow up examination was provided via teleconferences with program and Honolulu physicians at The Queen's Medical Center in Hawaii. Another program participant was provided a follow up examination at Majuro hospital with a program physician and provided treatment by physicians at the RMI Ministry of Health and Human Resources (MoHHS). No new cancers were detected during these follow-up examinations.

IV. Logistics Services

The logistics services element of the Special Medical Care Program includes the necessary infrastructure and support needed for the program to operate, including lease expenses and utilities for the Majuro clinic, facility maintenance and repair services, vehicle maintenance and repair services, supplies and equipment, medical and management personnel travel not directly related to medical screening examinations (e.g., program oversight, meetings, etc.), and continuing medical education.

The Special Medical Care Program conducts medical operations in the RMI from two clinical facilities. The Special Medical Care Program in Majuro is located in a commercial center in Uliga Village, within a five-minute drive to the island's hospital. A small office space dedicated to the

Special Medical Care Program is leased inside Ebeye Hospital (on Kwajalein Atoll), pursuant to an agreement with the RMI Ministry of Health and Human Services (MoHHS). Kwajalein is used as a staging area, with office space for program staff and storage of necessary supplies and equipment, for logistical support to the program. The program medical staff who are located in the RMI donate clinical hours to the RMI MoHHS and its hospitals.

V. Program Expenditures

The Special Medical Care Program costs in FY 2021 and FY 2022 (projected) are summarized in the following table.

Special Medical Care Program Costs for FY 2021 and Projected Costs for FY 2022

Program Element	FY 2020	FY 2021	FY 2022 Projected
Annual Medical Screening Examination Costs: <ul style="list-style-type: none"> Costs include, but are not limited to: <ul style="list-style-type: none"> Salaries for healthcare professionals and administrative staff; Pharmaceuticals; Medical supplies and equipment; Laboratory, imaging, and physician services; Aircraft and charter vessels for transportation for patient examinations inside the RMI; Medical malpractice insurance; Travel, lodging, and per diem expenses for patients and their escorts traveling to clinics in the RMI, Hawaii, or the CONUS for annual screening; and Medical personnel travel in support of annual screening exams. 	\$979,502	\$467,908	\$987,113
Medical Referral Costs: <ul style="list-style-type: none"> Costs include, but are not limited to: <ul style="list-style-type: none"> Medical services for patients referred to specialists for suspicion of cancer or follow-up care; and Travel, lodging, and per diem for patients and their escorts, and other travel-related costs. 	\$568,311	\$2,629,549	\$369,984
Medical Logistics Services Costs: <ul style="list-style-type: none"> Costs include, but are not limited to: <ul style="list-style-type: none"> Lease/Rent for the Majuro clinic; 	\$256,393	\$95,267	\$134,647

<ul style="list-style-type: none"> ○ Utilities for the Majuro clinic; ○ Facility maintenance and repair services; ○ Vehicle maintenance and repair services; ○ Supplies and equipment (office, cleaning, electronic, personal protective equipment, shipping and packing, vehicle fuel, health snacks and drinking water for patients); ○ Medical and management personnel travel not directly related to medical screening examinations (e.g., program oversight, meetings, etc.); and ○ Continuing medical education (conferences and seminars). 			
Total	\$1,354,620	\$3,192,723	\$1,491,744

The program's medical screening examination costs thus far for FY 2022 are anticipated to increase because of the effects of an aging participant population and concomitant increases in medical procedures. In FY 2021, the program's medical referral costs were substantially higher than previous years because the one patient referred from FY 2020 required additional medical services prior to the leukemia being addressed, and required a specific cancer therapy for leukemia not available in Hawaii. Medical logistics services costs are projected to decrease in FY 2022 as COVID-19 travel restrictions and precautions continue to reduce the number of program participants traveling to Honolulu for medical screening exams.

DOE conducted analyses of medical treatment costs for the Special Medical Care Program going back several years and existing patient comorbidities, to assess trends related to the treatment of cancers among the current patient population. From FY 2012 through FY 2020, cancer treatment costs have been highly variable, ranging from \$98,160 in FY 2019 to \$512,226 in FY 2014, with an average of \$324,612, annually. We do expect these costs to increase 51% over the next several years, due to patient age and other comorbidities.

VI. Conclusion

In FY 2020, DOE offered comprehensive annual medical screening examinations in the RMI and in the U.S. all of the 91 eligible individuals through the Special Medical Care Program, although some imaging services were not offered due to lack of availability in the Republic of the Marshall Islands. Sixteen patients were not examined for various reasons, including patient refusal and death, and postponement due to Covid-19/Dengue Fever travel restrictions. Of the

91 program participants examined, one (1) participant was referred to specialists for suspicion of cancer.

In FY 2021, DOE offered comprehensive annual medical screening examinations in the RMI and in the U.S. all of the 85 eligible individuals through the Special Medical Care Program, although some imaging services were not offered due to lack of availability in the Republic of the Marshall Islands. Thirty-one patients were not examined for various reasons, including patient refusal and death, and postponement due to Covid-19/Dengue Fever travel restrictions. Of the 54 program participants examined, four participants were referred to specialists for suspicion of cancer.

The medical care provided by DOE through the Special Medical Care Program included local community-based medical services in the RMI, as well as medical care at locations in Hawaii for services not currently available in the RMI, and in the CONUS for patients who reside there. DOE also provided support for travel, lodging, and per diem expenses for program participants and their escorts for program-related travel in the RMI, Hawaii, or the CONUS.

Total costs for the Special Medical Care Program in FY 2020 for medical care and logistics services were \$1,354,620. Total costs for the Special Medical Care Program in FY 2021 for medical care and logistics services were \$3,192,723. Costs are projected to decrease in FY 2022 to \$1,491,744 because two (2) cancer cases in FY 2021 incurred high costs due to specialized medical care.

Of the 85 participants in the Special Medical Care Program at the beginning of FY 2021, 8 died during FY 2021 (two following treatment for cancer), leaving 77 remaining eligible participants in the Special Medical Care Program on October 1, 2021, the start of FY 2022.