

Aviation and Health

A Key Nexus for the US Air Force's Regional Security-Building Efforts

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National Military Strategy and Security Cooperation

A confluence of fiscal challenges, lessons learned from Afghanistan and Iraq, and increased emphasis on US influence in the Asia-Pacific region has significantly shaped national strategic guidance in recent years.¹ One emergent theme is the importance of integrated diplomacy, development, and defense (“3D”) to prevent conflict and build partner nation (PN) capacity.² The 2010 *National Security Strategy* mandated enhancing regional security through “spur[ring] economic growth, strengthen[ing] weak and failing states, lift[ing] people out of poverty, combat[ing] . . . epidemic disease, and strengthen[ing] . . . governance.”³ Reinforcing that imperative, Presidential Policy Directive 23, published in 2013, aims to “help partner nations build the sustainable capacity to address common security challenges; promote partner support for the policies and interests of the United States; strengthen collective security and . . . promote universal values.”⁴

Building PN infrastructure is a complex task involving a myriad of interdependent facets of a nation's resources, including aviation. The United States helps PNs develop their whole-of-nation aviation enterprise to improve governance and economy. Doing so requires the coordinated expertise of a wide variety of US resources such as the US Trade and Development Agency, which has advanced public-private aviation partnerships overseas for over 20 years, linking industry leaders with US government resources such as the Federal Aviation Administration.⁵ A second critical resource is health care. The United States' Global Health Initiative, established in 2009, reflects the president's commitment to improving PNs' health, underscored by creation of the Office of Global Health Diplomacy in the Department of State

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(DOS) last year.⁶ The US Air Force (USAF) can significantly contribute to both aviation enterprise and health systems in a synergistic fashion, providing incentive to potential PNs to work with the United States in shared security objectives.

A second emergent theme of particular relevance to the Department of Defense (DOD) is the need to maintain regional influence and access in support of national interests.⁷ This national security imperative is advanced through innovative, low-cost, “small footprint” solutions to train, advise, and assist PNs to address humanitarian disasters, improve basic living conditions, and enhance interoperability.⁸ A shift to share the costs of security responsibility and capability among increasingly interoperable PNs while allowing US access permits a smaller force to support PN and US interests in antiaccess/area-denial environments and deters actors inclined to threaten regional security.⁹ By coupling the synergy between aviation enterprise development (AED) and global health engagement, the USAF can powerfully support defense strategic guidance to “be the security partner of choice” against threats including both natural disaster and external aggression.¹⁰

The USAF Response: Support a Coordinated, Whole-of-Nation Approach to Security Cooperation

AED is one of the primary means through which the USAF will build PN capacity.¹¹ It enables PNs to bolster legitimacy by better providing for its citizens’ needs, controlling undergoverned regions, protecting sovereignty, and participating in international trade through a whole-of-government investment that directly supports the aim of Presidential Policy Directive 23.¹² Such efforts fulfill the “expectation going forward . . . that Airmen will be intellectual thought leaders and bring ideas about how to employ not just the destructive effects of airpower, but also its constructive effects—deterrence, dissuasion, assurance, humanitarian assistance/disaster relief, building partnerships, air diplomacy, and partner . . . aviation enterprise development (AED)—to service national security and foreign policy needs.”¹³

Health and Aviation Enterprise Development: Phase Zero

The president clearly links global health to US strategic interests.¹⁴ Both the development of aviation and health capacity are mutually reinforcing, extending benefits to military and civilian populations and, potentially, the national economy. The dividends are realized in both peace and war, supporting both PN and US interests throughout all six phases of conflict described in Joint Publication 5-0, *Joint Operations Planning*.¹⁵

Phase zero (“shaping”) objectives (fig. 1) would advance through a network of airstrips near medical facilities including both simple dispensaries and hospitals to connect patients, providers, and medical (as well as nonmedical [e.g., agricultural]) materiel via a scheduled “ring route.” This cost-effective means to meet geographically marginalized citizens’ fundamental needs lends legitimacy to government and diminishes the likelihood of insurgency. Further, numerous studies have demonstrated reciprocity between public health and economic development.¹⁶ Such benefits provide incentive and justification for governments to partner with the United

States to better meet immediate peacetime demands from their citizens as well as prepare for possible threats from natural disaster, insurgency, or external aggression.

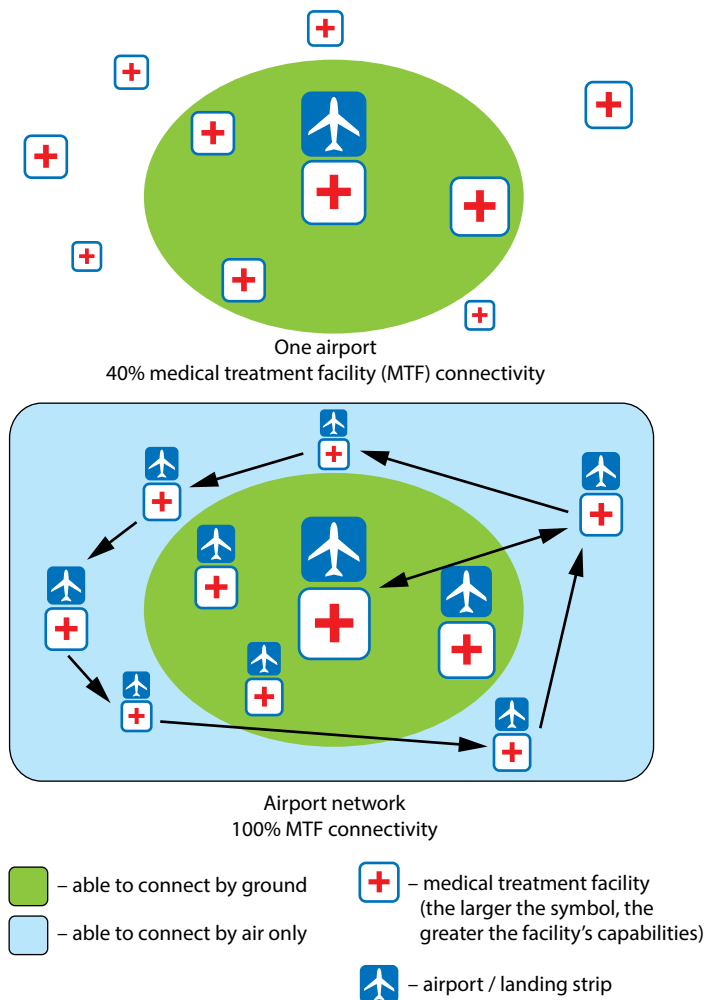


Figure 1. AED health model, phase zero (improve health resource network and governance). The model includes the following attributes: central hub schedules flow of specialty care and other resources; utilization of aircraft of opportunity and appropriately trained aeromedical teams; elective outreach as the predominant flow—ring route; and occasional hub and spoke for emergency services.

For almost a century, advances in combat aviation and medicine in the following countries/continents have translated into health services enabled by civilian aviation. They are enduring examples of the synergy between aircraft and public health.

United States

The US military initially proposed fixed-wing medical applications in 1909. World War I further stimulated aeromedical transport.

Australia

In 1917 Australian Air Force pilot (and former medical student) Lt J. Clifford Peel proposed supporting the health needs of the outback with a network of modified aircraft. Peel's vision launched in the 1920s when Qantas Airways (founded by another World War I Australian pilot) leased biplanes to a nascent health-outreach service. Today, Australia's Royal Flying Doctor service offers rural public health, primary care, specialists, and emergency evacuation service over 2.7 million square miles via a network of 21 bases and a fleet including Pilatus PC-12s, Beechcraft King Air B200s, and Cessna Grand Caravan C208s.¹⁷ Additional sustainable, time-tested, aviation-enabled health-care systems can be found on other continents. Programs such as those described below can be developed with whole-of-government AED assistance from the United States. The universally valued potential for improved health provides a uniquely compelling phase-zero incentive for potential PNs to underwrite AED investment with the United States.

Africa

In 1957 three expatriate reconstructive surgeons began the African Medical and Research Foundation (AMREF) to bring critical health services to remote communities. The largest African-led health-development organization on the continent, AMREF now offers training and health services to more than 30 African countries. Funded by both African and non-African governments, private institutions, and individuals, it has evolved beyond air transport to deliver preventive, community-based health care with a focus on public health research.¹⁸ AMREF continues to fly surgeons to rural hospitals where they not only perform highly specialized operations but also conduct training clinics for all levels of health professionals. Lauded by organizations such as the Bill and Melinda Gates Foundation for cost-effective health leadership, AMREF executes its flying mission with aircraft such as Cessna C-208 Caravan and Beechcraft B-200 Super King Air platforms. It also provides contracted air-ambulance care and has directly supported US DOD casualty evacuation with aircraft staffed and equipped for critical care.

South America

The Força Aérea Brasileira (FAB, Brazilian air force) provides transport for government and private health workers to serve indigenous populations in the Amazon region (fig. 2). Some mission costs are offset by private and corporate sponsorship, and aircrews benefit from the hours logged and regional familiarization, which enhances Brazilian governance in rural regions.



Figure 2. Efforts of the Força Aérea Brasileira. (Photos courtesy of the FAB.)

Journalist Douglas Engle describes images he has published, similar to those in figure 2:

A Brazilian Air Force (FAB) Cessna Caravan [is surrounded by fog] on an airstrip on the Yanomami reserve in Roraima state, Brazil. Health conditions for the Yanomami have improved ever since the beginning of relief missions by the FAB. The FAB uses its infrastructure and know-how to promote a three part policy for the remote Amazon region near the Venezuela and Guyana borders: To show a presence of state in the inaccessible area, by taking medical personnel to those areas and finally, to train pilots during real-life relief missions in an extreme environment. The increased presence in the area is, in part, to combat drug trafficking from Colombia into Brazil through Venezuela, which has increased after border areas with Colombia have become more secure. Some say it may also be a reaction to Venezuela's recent acquisition of Russian-made helicopters and fighter jets.¹⁹

Asia

Recently, a senior Sri Lanka Air Force officer articulated his service's two primary responsibilities—protecting the airspace and partnering in nation building—by quoting American brigadier general Billy Mitchell: “The Air Force is the greatest developing power in the world today.” The officer further pointed out that Sri Lanka Air Force ground crews construct and renovate airports around the nation, and flyers support humanitarian assistance and domestic flying operations, including tourism, to bolster the economy via scheduled and chartered flights. Thus they gain flight-hour experience with the same air crews charged with intelligence, surveillance, and reconnaissance; counternarcotics; and maritime/border patrol missions.²⁰

Aviation Enterprise Development and Health beyond Phase Zero

Although assisting PNs with their aviation enterprise primarily aims to help them shoulder their own baseline security challenges, it also supports an infrastructure (e.g., aerial ports and medical treatment facilities) that is more survivable and effectively augmented if resources are overwhelmed by natural disaster, insurgency, or outside aggression.²¹ Should catastrophe strike or diplomatic and development efforts fail to prevent armed conflict, AED provides the PN phase one through five benefits by means of airstrips and medical treatment facilities that can be rapidly expanded through pre-positioned materiel, as well as PN and DOD personnel resources (fig. 3). Cost-effective, shared civilian-military usage at airports is

currently reflected in more than 20 joint-use facilities in the United States alone. This resource-appropriate concept offers a redundant, resilient network of forward air bases and a scalable construct for casualty evaluation, treatment, and evacuation. In-theater transport of medical (and nonmedical) materiel would be facilitated by adaptive, agile, dual-purpose, light, fixed-wing aircraft. Should the PN request US assistance, platforms and aircrews (including medics) could come from both nations' interoperable pools trained in foreign internal defense and would likely transition from a scheduled ring route to increased "hub and spoke" sortie flow. Just as the USAF has transitioned from C-9s to aircraft of opportunity with specially trained aeromedical teams (e.g., critical-care air-transport teams) for patient transport, so must PN training include aeromedical skills.

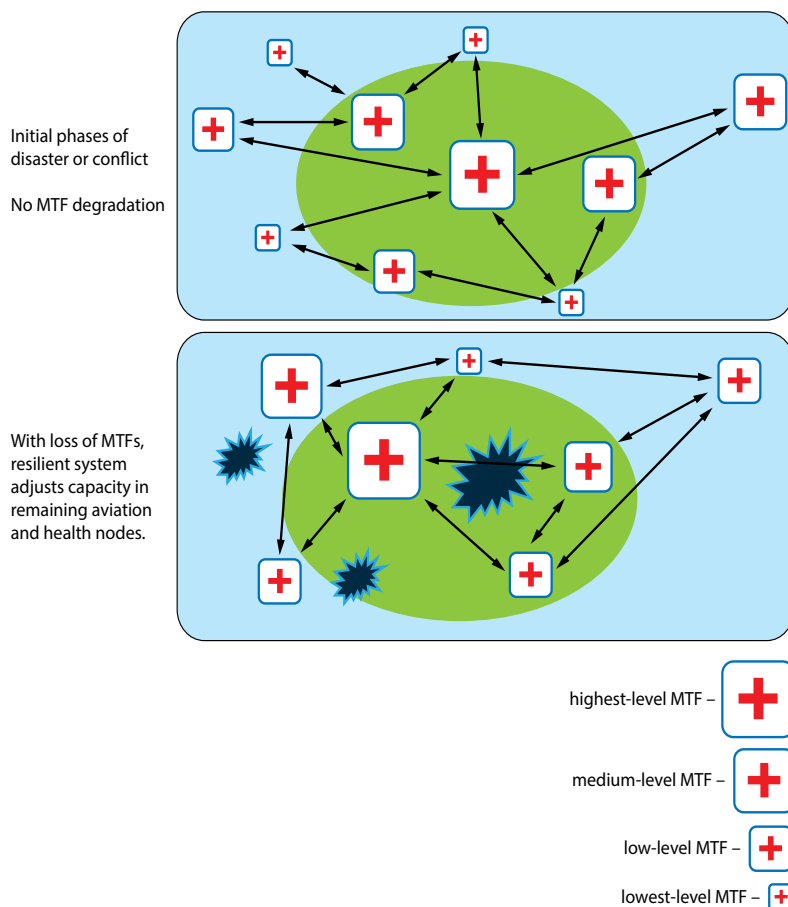


Figure 3. AED health model: resilience and redundancy during disaster and conflict. (The model includes the following attributes: lower tiers can export needs and import capabilities/resources from within the system; all tiers can upgrade from outside the system; the model provides a redundant, scalable, modular, and resilient platform for air sorties, command and control, casualty care, and offensive activities; it utilizes aircraft of opportunity and appropriately trained aeromedical teams; traffic flow and base capability can adapt to changing demands and/or resources; and predominant flow may shift to hub and spoke [materiel/resources out and casualties in/out].)

Challenges

The first step in helping build aviation and health capacity involves working with PNs to identify gaps in their response to the needs of domestic and international governance. Country teams at each embassy must understand how this investment and partnership align resources with PN demands to satisfy visible, baseline population needs as well as address potential security/military threats in a cost-effective manner. Offering rural or other underserved areas (because of great distances, mountains, or water barriers) with access to centralized, concentrated, but limited resources (from trauma/emergency care to diagnostic and therapeutic equipment to specialty consultants) via aviation is much cheaper than duplicating them throughout a nonintegrated patchwork of care. The following give foreign governments a powerful set of incentives: benefits in legitimacy, improved governance, commercial utility and economic growth, increased currency and training for aircrews in multiuse aircraft (for internal defense, counternarcotics, etc.) and an enhanced ability to respond to natural disasters.

To satisfy these roles, light, fixed-wing aircraft (see the table below) supply generally adequate capability and are relatively inexpensive to procure, operate, and maintain. Several are utilized in the health-network models mentioned earlier, and all have been fielded in relatively small numbers within Air Force Special Operations Command (AFSOC). Some have also been sold by the US government to PN air forces in a variety of configurations. As Maj Gen Michael Keltz of Air Education and Training Command observes, US air-advising support in such aircraft has proven critical in developing the Afghan Air Force.²²

Table. Aircraft employed in health-network models

<i>Make / Model</i>	<i>Crew</i>	<i>Engines</i>	<i>Passengers</i>	<i>Range^a (nautical miles)</i>
Cessna Caravan (C208)	Pilot	Single	10	1,000
Pilatus PC- 6	Pilot	Single	10	500
Pilatus PC-12	Pilot	Single	9	2,000
CASA 212	Pilot, copilot	Twin	26	1,000
Beechcraft King Air (B200)	Pilot	Twin	7	1,500
CASA 235	Pilot, copilot	Twin	44	2,350

^a These ranges are rough estimates for illustrative purposes.

Recognizing the benefits of such platforms to partners around the globe, the 2010 *Quadrennial Defense Review Report* tasked the USAF to “field light mobility and light attack aircraft in general purpose units in order to increase their ability to work effectively with a wider range of partner air forces.”²³ Not only should the USAF

maintain such aircraft in its inventory but also the Office of the Secretary of the Air Force for International Affairs, AFSOC, and the component numbered air forces together have a critical opportunity to inform and shape PN's procurement of aviation platforms through foreign military sales and other mechanisms for sustainable means to build partner capacity that incorporates USAF influence for years to come.²⁴ In addition to "pilot training, mobility, CASEVAC [casualty evacuation], light attack, and air support for special missions" sorties mentioned by Major General Keltz as examples of the critical impact of air advisors, development of dual-use civilian/military health networks beyond casualty evacuation is furthered by the USAF's investing in these aircraft and sharing the skills to use them.²⁵

Since aviation and medical systems do not build and operate themselves, planners familiar with the goals of AED and health-capacity development, together with advisors from across a broad spectrum of Air Force specialty codes—including pilots and mechanics as well as air traffic controllers and medics—are required. In addition to maintaining the Air Advising Academy, the USAF needs to organize, train, and equip to effectively support this strategic mission, enabled by enhanced cultural and often foreign language capabilities.

For operations beyond phase zero, plans must include the capacity to expand and accommodate a surge of USAF-compatible platforms and personnel. Pre-positioned supplies for aviation and medical needs as well as interoperable (made so by exercises and exchanges) PN personnel will make for a smoother transition from steady-state conditions to conflict or disaster response and from PN to shared US execution.²⁶

The Way Forward

This AED health proposal supports all three components of the *National Security Strategy's* "3D" posture, providing country teams and ambassadors a compelling instrument for "air diplomacy" by building trust, creating capability and capacity for PN governance, and advancing security interests for both PNs and the United States. To realize this potential, the USAF requires "3 Ps"—partners, platforms, and people.

Partners

Ideally, prospective partners already have both a military and civilian aviation infrastructure, a history of cooperation with the DOD, shared regional security goals, a significant proportion of English-speaking citizens, and health and internal security issues (especially complicated by geography or topography) that would particularly benefit from aviation support; moreover, they would be prioritized in the theater campaign plan as strategically important. The Philippines offers a potential exemplar. Historically linked to the United States via treaty and a tradition of joint and multinational exercises, the Philippines has a medical and aviation infrastructure with geographically focused areas of excellence and a large proportion of English-speaking citizens. The nation, however, is confronted with the prospect of governing and providing services to citizens scattered over an archipelago of 7,000 islands and struggles with the threat of insurgent and terrorist activity in its southwestern

region. US special operations forces have provided constant support and a training presence for counterinsurgent/counterterror operations for over a decade.

The Philippines' recent experience with supertyphoon Haiyan illustrates the importance of aviation to population health.²⁷ Extensive infrastructure damage hampered relief efforts. Officials with the US DOD, armed forces of the Philippines, and US Agency for International Development (USAID) / Office of Foreign Disaster Assistance quickly established airport clearance as a top priority to allow humanitarian assistance, noting that "military capabilities enabled access to remote and difficult to reach locations."²⁸ Not only tactical military rescue operations but also "the ability of the U.S. and other militaries to airlift in enormous amounts of aid . . . kept morbidity and mortality relatively low."²⁹

Enhancing the infrastructure of a nation such as the Philippines would begin with identifying airstrips in strategic locations in reasonable proximity to clinics or hospitals. The latter could be expanded to accommodate surge activity in response to natural disasters or conflict, overcoming "geographical constraints of conducting a wide-scale relief effort composed of isolated islands and inaccessible road networks."³⁰ As the armed forces of the Philippines consider replacing their aging fleet of aircraft such as the OV-10, the USAF could explore which versatile light aircraft could provide not only intelligence, surveillance, and reconnaissance and close air support but also interoperable aeromedical evacuation and materiel transport. Such platforms would prove useful in future humanitarian assistance / disaster response roles since the Philippines confronts an average of 20 typhoons per year.³¹

Platforms

Predicated on the distances between health-network nodes and the anticipated volume of personnel and materiel needing transport to enhance governance, PNs determine which light, fixed-wing, multirole transport airframes are appropriate—an area where effective "airmen-statesmen" can help inform and shape decisions that facilitate interoperability. Whole-of-government—even whole-of-nation—domestic partnerships between the USAF and agencies and contract service providers could assist that service's Airmen gain and maintain proficiency in such aircraft beyond the currently limited number in the US inventory.³² Simultaneously, as advocated in *Irregular Warfare Strategy 2013*, the USAF should continue to seek creative, effective, and affordable means to assist PN air forces in acquiring, maintaining, and operating light aircraft.³³

For example, funds authorized by the National Defense Authorization Act, section 1206, for training and equipping PNs to combat global terrorism and instability have been used to purchase Cessna 208s in several sub-Saharan African nations since fiscal year 2012. Casualty evacuation training on these airframes with PNs—coordinated by US Air Forces in Africa and executed by AFSOC—has already resulted in successful air transport of civilian trauma patients, reinforcing skill currency in pilots and medical crews.³⁴ It should be noted that humanitarian assistance programs were the first DOD-funded initiatives administered by the Defense Security Cooperation Agency (DSCA) to support security cooperation.³⁵ The utility of a light-aircraft-facilitated health network to bridge development interests of the DOD,

USAID, and PNs should also be considered for Overseas Humanitarian, Disaster, and Civic Aid funding.

People

President Eisenhower's observation that "plans are nothing; planning is everything" rings particularly true for security cooperation. Effective international security cooperation planning and execution depend upon building relationships to develop trust, detailed understanding, and open lines of structured communication to establish initial concepts and then modify them as needed. Maximum efficacy calls for intercultural—and often foreign language—understanding as well as familiarity with security cooperation programming, planning, and execution.³⁶

According to the 2010 *Quadrennial Defense Review Report*, "The Air Force will also expand its regionally oriented contingency response groups . . . to sustain specialized expertise in regions and countries of greatest importance," and subsequent strategic documents have continued to emphasize the importance of regional expertise.³⁷ To do so, the same report stresses that "we can and must do more . . . to make changes to our personnel, organizations, and processes to develop and track qualified personnel for capacity-building activities, and develop critical enablers such as language, regional, and cultural skills."³⁸ Senior Air Force leadership agrees that an emphasis on force development is necessary for "building and maintaining language, region, and culture expertise . . . [because] thinking strategically about how peacetime operations can shape geopolitical relationships to provide advantage for U.S. foreign policy will grow in importance and positively affect individual promotions."³⁹ Force-development concerns include how to identify, track, and appropriately incentivize and shepherd the careers of individuals with skills in security cooperation and language, region, and culture. Deliberate development of regionally oriented personnel is specifically supported by Gen Martin E. Dempsey, chairman of the Joint Chiefs of Staff, who emphasizes the importance of such career shepherding for all geographic theaters and especially for senior leaders in Pacific Command.⁴⁰

In recent years, the air-advising mission has been expanded to create airmen-statesmen in all Air Force specialty codes, not just in international affairs specialists. The foreign internal defense mission, historically delegated to the 6th Special Operations Squadron (AFSOC), is increasingly shared with general-purpose-force units such as the 36th Contingency Response Group, 818th Mobility Support Advisory Squadron (MSAS), and 571st MSAS, regionally aligned with US Pacific Air Forces, US Air Forces in Africa, and US Air Forces Southern, respectively. What has not changed is the requirement to coordinate funding for procurement of platforms and training with the DSCA and the Office of the Deputy Under Secretary of the Air Force for International Affairs.

The primary source of airmen-statesmen in the Air Force Medical Service is the international health specialist (IHS) program, which organizes, trains, and equips health professionals of all corps with cultural, linguistic, and security cooperation skills (e.g., planning and programming) to advise combatant command and component surgeon general staff as well as develop medical lines of engagement to support the desired end states of the theater campaign plan. To embrace AED, IHS staff

must continue to closely work with theater planners, theater special operations commands, personnel from other services, country-team security cooperation officers, and counterparts in the US DOS and USAID to ensure whole-of-government AED integration and partnership. IHS medical objectives already overwhelmingly support values and goals of the DOS's Global Health Initiative. Increased coordination with that department and USAID, however, will be critical to assure effective utilization of all US government resources as well as inclusion of nongovernmental and private organizations experienced in international development. With requests validated by country teams, theater air planners can assist PNs with building capacity to connect populations with health resources.

Summary

Security cooperation through assistance in aviation enterprise and health development enables a “small footprint” posture that helps PNs govern more effectively, provide essential services such as health care and disaster response, and contribute to regional security. If they request assistance with overwhelming catastrophes or defense from external aggressors, then US investment in AED will allow our Air Force to better integrate into and more effectively augment interoperable PN aviation and medical infrastructures.

Improving health-care capacity offers a uniquely compelling incentive for foreign governments to partner with the United States in peacetime to prepare for the full spectrum of civil and military operations. Realizing this aspiration demands significant cross-functional, joint, and international planning. Furthermore, USAF force development should continue examining means to identify, train, and deliberately shape careers to disseminate security cooperation and language, regional expertise, and culture skills throughout the service—particularly in future leaders. Additionally, effective USAF partnership will entail assisting other nations to procure and effectively operate affordable, interoperable, and multirole light aircraft.

Most importantly, Air Force components must articulate to combatant command staff the importance of coordinated AED in the larger imperative of building PNs' capacity and the unique contributions that USAF resources offer the US government (including the DOS, USAID, and our sister military departments) as well as international bodies such as the World Health Organization and nongovernmental organizations. Line and medical planners must work with embassy senior defense officials and security cooperation officers to attain this understanding and ensure that appropriate priority and resources are included in component campaign support plans and country plans. Only when requests from security cooperation officers are vetted at combatant commands and forwarded to the DSCA for funding and coordination with the DOD, DOS, and USAID can the appropriate funding sources be leveraged for maximally synergistic purposes.

B. H. Liddell Hart observed that strategy “is not so much to seek battle as to seek a strategic situation so advantageous that if it does not of itself produce the decision, its continuation by battle is sure to.”⁴¹ As part of whole-of-government coordinated assistance in aviation enterprise and health development, the USAF can sig-

nificantly contribute to national security goals such as humanitarian assistance and preparedness for Air-Sea Battle. Investment in this strategy would foster PN self-reliance; contribute to deterrence through access, influence, and targeting challenges; and, should deterrence fail, provide a means for the United States to more effectively ally with others for shared security objectives around the globe. Its realization begins with advocacy of informed combatant command staffs and US Embassy country teams that perceive the value in what the USAF offers to a remarkably broad range of stakeholders in their theaters and nations. ☛

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