

ALTERNATIVE VIEWPOINTS

The Future of Advanced Pharmacy Practice: Wildcats versus Zeros

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Status of US Healthcare

As is commonly emphasized in recent, and not so recent, presentations, journal articles and books, the US healthcare system is in crisis. In the US, we spend more on healthcare than any other country in the world¹ and yet rank 27th for average life expectancy.² Recent studies demonstrate that relative to other developed countries, the US is outperformed in terms of quality, access, and efficiency.^{3, 4} Already the cost of providing healthcare coverage to employees has become one of the biggest liabilities to the survival of many US multinational companies.⁵ Healthcare costs consume an increasing portion of the average family income and contribute to the lack of insurance coverage for more than 46 million Americans.^{6, 7} The current increasing trend in portion of gross national product allocated to healthcare-related costs is considered unsustainable by 2020.

Like many others, I was at first dismayed by the facts relating to our poor national performance in healthcare. Subsequently, I was curious. How were other developed countries with superior health at a more affordable cost achieving such a feat? Surely the answer must lie within the structure, systems, policies, and organization of healthcare delivery in these outperforming countries. In the US, we need only to discover these best practices and adapt them into our own system.

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Having spent some time researching this question, I am struck by two things related to my profession. First, upon investigating the inner workings of these superior healthcare delivery systems, there is not a single case where the profession of pharmacy plays a significant role. Advanced pharmacy practice does not exist in most of these countries. I am more than a decade into the practice of my craft, an advanced pharmacy practitioner in the ambulatory setting. Is there no role for me and my fellow pharmacists in the righting of the American healthcare system? Was all the education and training, the difficulty in establishing a new practice where I can prescribe under the authority of my physician partners, the struggle to collect data and demonstrate value, and the anguish in promoting the value of pharmacy really wasted? Based on information extracted from the world's best systems, the answer may be "yes." These countries with superior performance have focused on large levers to produce significant results within the context of the time-honored model where physicians give care, insurance pays for care, and patients receive care. They have not achieved their outcomes through additional investment and added complexity in such an incremental intervention as optimal integration of "physician extenders."

This dark professional outlook was, however, followed by a second insight. That is, despite the implementation of significant system advances relative to the US, no country appears to have achieved optimal system design and performance. All countries, without exception, continue to struggle with balancing the key dynamics of cost, quality and service. So where does this second insight leave the advanced pharmacy practitioner? To answer this question, we might look for lessons in history to light our path.

A Lesson from WW II

When America entered World War II on December 7, 1941, the Grumman F4F Wildcat was the front line carrier-based fighter for the Navy and Marine Corp. in the Pacific theater. It became immediately obvious to US fighter squadrons that the Wildcat was outperformed in almost every sense by the Japanese Zero. In one-to-one aerial combat, the Wildcat was no match for the Zero's superior design, which resulted in critical advantages in maneuverability, speed and rate of climb. However, large-scale production issues would delay the delivery of newer, better aircraft, such as the Corsair and Hellcat, for the better part of a year. In the meantime, fighter pilots had no choice but to defend US aircraft carriers against the deadly Zeros.

In the face of these incredible odds, Lt Commander John ("Jimmy") Thatch devised a strategy that allowed Wildcat formations to act in coordinated maneuvers, called the "Thatch Weave". In this maneuver, Wildcat pilots working in *teams* could defend against Zero attacks. The tactic, still in use today, was tested in the Battle of Midway and is credited for some pivotal victories, turning the tide in the war of the Pacific. Although unsubstantiated, one hypothesis is that early participation in the team-based sport of football by American pilots later helped squadrons overcome the inferiority of the US planes until newer aircraft could be brought into service. The irony of this hypothesis surrounds the American reputation for individualistic independence relative to their Japanese counterparts at the time.

The Future of Advanced Pharmacy Practice

Fast forward almost 70 years and Japan is among many healthcare systems that can boast of better health outcomes at a lower cost relative to the US.⁴ Best practices from such countries include universal coverage, price controls, mandated system-wide operational efficiencies, and a national culture of health. Although frequently discussed, imminent full-scale implementation of these solutions appears unlikely in the US. Like the Wildcat pilots in WWII, might Americans once again embrace a unique team-based solution as an immediate, important, and achievable contribution toward the solution of our healthcare crisis? Indeed, there is an increasing buzz about "team-based care" across the healthcare industry.⁸⁻¹⁰

This would seem to represent great news for advanced pharmacy practitioners who commonly assert that they are already practicing team-based care. In fact, as a profession we have been diligently publishing supporting evidence on this topic for decades. Yet, as a profession we struggle to accomplish reimbursement, or put another way, to find a market for our services. Having shared in this struggle, by following listserv discussions, attending how-to courses on pharmacy reimbursement, and negotiating with payers, I attributed the problem of an unresponsive market to three things: (1) regulatory barriers (i.e., pharmacists unrecognized as healthcare providers), (2) direct inter-professional competition (i.e., turf issues), and (3) a conservative insurance industry (i.e., irrational, bureaucratic decision-making on the part of unenlightened payers).

However, if we think about team-based care as a new "product" to be devised, developed, and sold as at least a partial solution to the problems of American healthcare consumers, it must offer higher quality and better service at a lower cost relative to the current state. Believing that pharmacy had published some of the most advanced research on team-based care, I recently conducted a literature review to bolster my position. I selected hypertension as it provides an exemplary model for management of other clinical conditions commonly involving pharmacists and represents some of our most mature and extensive research. My search strategy (Ovid January 1950–July 2008, search terms "hypertension" and "pharmacist", limiting by "English-language" and "randomized controlled trial"), yielded 17 hits which I reviewed to identify studies in which the primary intervention was pharmacist involvement in hypertension management as compared to usual primary care. I excluded studies involving concomitant interventions (e.g., home monitoring) that might confound my evaluation.^{11, 12} My review focused on two particular aspects; (1) characteristics of the physician-pharmacist relationship, and (2) study outcomes relative to criteria defining a superior product (i.e., clinical benefit, service experience and delivery cost).

David Hawkins, a pioneer of advanced pharmacy practice, published one of the first RCTs evaluating the role of pharmacists in the management of hypertension nearly 30 years ago.¹³ As it turns out, this large, well-designed

study provides no insight into the role of pharmacists in team-based care, as it compared the pharmacist practitioner head-to-head with physician practitioners. The rarely discussed study findings showed that subjects randomized to the pharmacist had significantly worse systolic blood pressure (147 vs. 141mmHg, p=0.001), but also significantly more office visits (6.7 vs. 5.4, p=0.001) as compared to physicians. Clearly an inferior product based on our criteria.

Since that early study, numerous RCTs have further evaluated pharmacist involvement in hypertension management.¹⁴⁻²² Table 1 displays some characteristics of the physician-pharmacist relationship observed in those publications. Although many of these studies tout a more collaborative, team-based approach compared to the Hawkins study, the pharmacist was typically not even in close geographic proximity to their physician teammate. The communication

between the pharmacist and physician is often asynchronous and, in many situations, occurs passively through chart documentation. Clinical benefit, as measured by blood pressure, was predominantly statistically significantly better in the pharmacy collaborative model; however, this improvement is generally clinically modest. When service experience was assessed, no difference in patient satisfaction was found. Notably, overall cost of delivering care was rarely considered among the study outcomes, but to the casual observer appears to be higher than usual care.

Reflecting on this body of research, I presume that a savvy consumer would conclude that pharmacist involvement in care contributes to a minimally improved product being sold at a higher cost. Admittedly, it might be unfair to judge this research against a yardstick of the ideal team-based care model. Having participated in

Table 1. RCTs evaluating pharmacist involvement in hypertension management: Description of select team-related characteristics and study outcomes.

Characteristics of Pharmacist/Physician Relationship				Outcomes		
No. of Patients ^a	Co-located in same clinic, same time?	Nature of pharmacist authority	Mode of communication with physician	Clinical Quality (SBP/DBP: intervention vs. control)	Service Quality (Satisfaction)	Cost (Total clinic visits: intervention vs control)
50 ¹⁴⁻²²	No (community pharmacy)	Recommend	Synchronous, Remote (phone)	149 vs. 168 97 103	NE	NE
629 ¹³	No (pharmacy-run clinic)	Prescribe (according to protocol)	Asynchronous, Remote (note attached to chart)	147 vs. 141 84 84	NE	6.7 vs. 5.4
95 ¹⁴	Yes	Recommend	Asynchronous, Remote (note attached to chart)	132 vs. 145 82 93	NE	NE
36 ¹⁹	No	Recommend	Synchronous, Remote (phone)	141 vs. 147 80 86	NE	NE
330 ²⁰	No (pharmacy-run clinic)	Prescribe (following consent)	Synchronous, Remote (phone)	135 vs. 142 78 81	NE	5.3 vs. 1.1
53 ²²	No (pharmacy-run clinic)	Prescribe (according to protocol)	Asynchronous, Remote (note attached to chart)	132 vs. 147 74 78	NE	NE
197 ¹⁵	No (pharmacy-run clinic)	Prescribe (following consent)	Synchronous, Remote (phone)	134 vs. 151 83 84	NE	8.0 vs. 6.6
227 ²¹	Yes	Recommend	Asynchronous, Remote (note attached to chart)	122 vs. 125 72 74	NE	NE
160 ¹⁶	Yes	Recommend (sometimes authorized to prescribe)	Synchronous Near (in person)	124 vs. 133 ^b 75 79	NE	NE ^c
272 ¹⁷	Yes	Prescribe (according to protocol)	Synchronous, Near (in person)	142 vs. 148 77 80	No difference	7.2 vs. 4.9

SBP=systolic blood pressure; DBP=diastolic blood pressure; NE=not evaluated

^aNumber of subjects included in the evaluation analyses

^bUnadjusted for baseline results

^cStudy protocol stipulated five pharmacy visits

designing one of these hypertension studies, I will confess that my underlying agenda was simply to prove the value of advanced pharmacy practice. In essence, I was thinking more about justifying my service (i.e., what the seller wants), and less about creating a team-based service that is justifiable (i.e., what the buyer needs).

As I look back, my pharmacy education and residency program were focused on producing the equivalent of an ace pilot. No doubt, knowing the best drug at the right dose at the least expense in every situation based on best evidence is a valuable and needed skill in medical practice. However, my pharmacy training lacked orientation to the broader perspective of how to work with my healthcare teammates to defend our equivalent to the aircraft carrier—the community of patients served by the US healthcare system.

Abandoning the security of our current professional role to work together with other healthcare professionals to redesign care delivery is a tall order. In another aviation analogy, the commercial airline industry has made great strides in moving to a team-based, high performance culture. A valued colleague of mine recently hypothesized this more rapid transformation has occurred because the pilot and crew share the same fate as their customers, while we in healthcare collect our paycheck and go home regardless of the fate of our patients. Certainly, Jimmy Thatch and his squadron had high personal incentive to devise new ways of working together to overcome adversity. For me, it seems, the first step in exploring true team-based care innovation is a re-examination of my own internal perspective and motivation.

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