*A DEVELOPER'S TAKE*

# Don't Mess With Mother Nature

*Vertical solutions have evolved for a reason.*

by Donald W. Miller Jr.

---

**I**t would be incredibly arrogant for human beings, whose lifetime is infinitesimally small compared to millions of years of evolution, to choose which evolutionary features they thought were most valuable to any one species and discount the rest as unnecessary. Certain characteristics, behaviors, and functionality have evolved over eons for reasons that may not be immediately apparent to a casual observer.

Information systems that are unique to selected areas of clinical practice also have evolved--although over mere decades. But it would be just as arrogant to profess to understand the information needs and complexities of every clinical area and then impose a single one-size-fits-all information solution.

Nonetheless, some healthcare organizations have chosen to reflexively reject all vertical information solutions that do not tightly integrate with their "unified" information architecture vision. Many organizations and CIOs are still reeling from the problems caused by decades of purchasing and maintaining disparate systems, multiple databases, proprietary applications, and fragile interfaces. But rigidly enforcing a generic information strategy is likely to disrupt highly evolved clinical workflow patterns by ignoring time-tested approaches to solving particular problems and may actually degrade the quality of patient care.

Before rejecting a vertical solution, organizations should identify the clinical specialties that have evolved so distinctly that such a solution is still required. And if a new vertical information island is being considered, certain key features will allow it to complement an integrated information strategy.

**Clues to "evolved" specialties**
Obstetrics is a prime example of a distinctly evolved specialty, in which current generic systems have little to offer. Obstetricians still use paper forms rather than information systems costing millions. Some other evolved specialties include intensive care, dialysis, cardiology, oncology, gastroenterology and ophthalmology. The following are characteristics that these specialties have in common:

- An "orphan" paper chart. Despite the flexibility of a single patient- centered paper chart, these specialties have found that the chart everyone else uses does not suit their information needs or their availability requirements.
- A well-defined, finite vocabulary. These specialties, well ahead of the rest of medicine, have probably already arrived at a de facto clinical vocabulary that is most likely accepted nationwide and perhaps endorsed by their respective specialty societies.
- Key paper forms. Because these specialties' vocabulary and care strategies focus on one condition or organ system, collection of data lends itself to forms, whether paper or electronic. These forms also become useful specialty-specific information displays. Key forms may even be standardized nationally.
- Exclusive clinical data. The data collected by these specialties is of little or no interest to almost anyone else, including referring doctors, general practitioners, or other non-specialty-related caregivers.
- Finite period of care. Conditions treated by these specialists are typically one-time episodes or self-limited.

**Criteria of new information islands**
New information islands must have certain characteristics to make them worthwhile and cost-effective. First, they should have immediate and obvious value for patients and clinicians. It may be years before existing information systems address the needs of evolved specialties. There is no excuse for depriving these specialties and their patients of the problem-solving and mistake-preventing technology that is available now.

Open, nonproprietary data structures are a must. Specialty information systems may function entirely independently during a period of care, but when that care period is over, the data must be easily integrated into centralized data structures using conventional means (e.g., XML, CSV files).

Vertical solutions should hum quietly in the background or, perhaps, be outsourced entirely to application service providers. Those that require custom programming or extensive interfacing, maintenance or support are not worth the short-term investment.

New information islands should capitalize on IS competencies and skills (e.g., database management, Web servers, security) that already exist at the institution and not burden personnel with learning new proprietary systems and tools.

By being open to adoption of unobtrusive vertical solutions for evolved specialties, healthcare IT executives can create a blended enterprise solution that demonstrates an ongoing partnership with specialists yet is still compatible with long-term information system goals.

---

*Donald W. Miller Jr., M.D., is founder and chief architect, eNATAL LLC, Shawnee, Kan.*

---