Can Medical Systems Flourish in the 1980s?

Christmas of 1979 and New Year's Day of 1980 did not arrive at our house with fears of the Ayatollah or concerns over gas lines and continuing inflation, nor was there the slightest interest in the election or the soaring price of gold. No, our children celebrated Christmas and the eventful pursuit of the next decade with the happy delight of Big Track. Big Track took our household, the children, and even the neighbors by complete surprise. Our two Siamese cats will never be the same.

For those who have limited exposure to children and their latest space-age toys, the Big Track phenomenon consists of a tank with six large wheels that is entirely microprocessor-controlled. This particular device has a touch-sensitive pad on its aft deck that gives the microprocessor commands to execute 16 sequential functions, including such complex concepts as turning left and right and repeating programmed sequences with a single button selection. The toy has such advanced features as owner alert when it is not being used and the battery power is being drained, and phaser firing power that can shock any sleeping feline.

I had no idea what we were getting into when the children were enticed by television to plead for such a new addition to their room. The Christmas morning that this new toy arrived, there was the initial cry for batteries and a hookup. I expected the customary sort of problems with these semi-disposable products and dutifully installed the appropriate long-lasting items. I then instructed the children to sit down with the instruction manual and learn how to use the device. You see, I have been well trained by Tektronix. Their literature attached to test instruments reads: "If all else fails, read the manual!"

Well, the children didn't read the manual; they grabbed the tank and headed for the cats. They turned the switch on and pushed the buttons on the back of the tank. The toy beeped to life, immediately started across the floor, and fired its light phaser gun at our sleeping Siamese, who immediately leaped into the air and headed for safe cover. The mission being accomplished, the tank quickly did a 180-degree turn, under computer control, and returned to its master for further instructions. We could not believe our eyes! The children had never had an opportunity to use this toy and had only seen bits and pieces of advertising on television. They have had some experience with calculators but no training for this rather complex item. With minimal coaching and without reading the manual, the kids had picked up the technology, the instruction set, and were off and running. For the rest of the day nothing in the house was sacred. The tank went left, it went right, it backed up, it did circles and turns, and
every child in the neighborhood came over to give it a new program. Obviously, the
d biggest hit in our house in 1980 was Big Track. Even now, the toy appears to have en-
during interest since it's the only one that is selected to go on trips or to be taken out
for communal play.

When I see this kind of enthusiasm, excitement, and joy surrounding such a
device and such technology, it makes me pensive. I can't help recalling where we
started 7 years ago at the University of Florida. When we first attempted to introduce
a computer into our teaching environment, there was absolutely no interest from a
technical or health care viewpoint. The only concern was in solving audit problems
regarding laboratory data using a high-speed patient bill that would increase the cash
flow for both the department and the hospital. Skeptics were in the majority and sup-
port rested with a loyal few who were willing to risk a great deal in hopes of some
finite return. Time has changed many things, but the same people who were here in the
early 1970s still exist and still have a very limited interest in computer technology and
what it might mean for patient care. With an exponential growth in our electronics
capability we see a widening span between those to be classed as users and a second
group, which will be classed as providers. Adults of today appear to be preoccupied
with money, energy, and personal power. The limited time they have to focus on out-
side activities is usually directed toward traditional pursuits such as athletic events and
fishing. The silent revolution going on in communication and digital technology is
passing quite unnoticed by the majority of practicing medical specialists and ad-
ministrators.

Perhaps the concerns of the day will see a transition into this new technology by
natural evolution. We all know the extreme costs of paper and publication and how
much wasted time and effort is expended in transmitting these kinds of documents
around a hospital or clinic. With computer technology, new systems, and word
processors, we can envision in the relatively near future paperless offices and paperless
hospitals, which would result in a net energy saving of great significance. We also hear
from the business community a demand for increased productivity. This increase is
possible through the use of modern technology properly applied in selected areas.
We've heard the proposal for electronic mail and the potential for this in the coming
1980s. All of these factors are contributing to a gradual, yet certain, transition for
hospitals.

Although the metamorphosis seems painfully slow for those of us who deal with
these issues every day, it is occurring and will occur because of the basic nature of the
world's economy and its needs for new technology. The blockades are there as well as
the opportunities for hospital systems and medical specialists. As we make these
changes, new and significant elements of concern will surface in the areas of
maintenance and systems development. Hospitals centers will, in the 1980s, find a dis-
tinct need to become specialists in medical systems and to retain a staff of specialists
who see to the daily operation of their systems and their continued growth and
development. A reliance on outside resources and support will soon become counter-
productive and dangerous to the actual support of patient care within the hospital
complex. Because of the expanding mode of technology and its ability to outdate itself
within 2 to 3 years, corporations will wander in and out of this particular field, and no
hospital purchasing such technology can afford to be left without continuing
maintenance and a development staff that can handle the hospital on a permanent