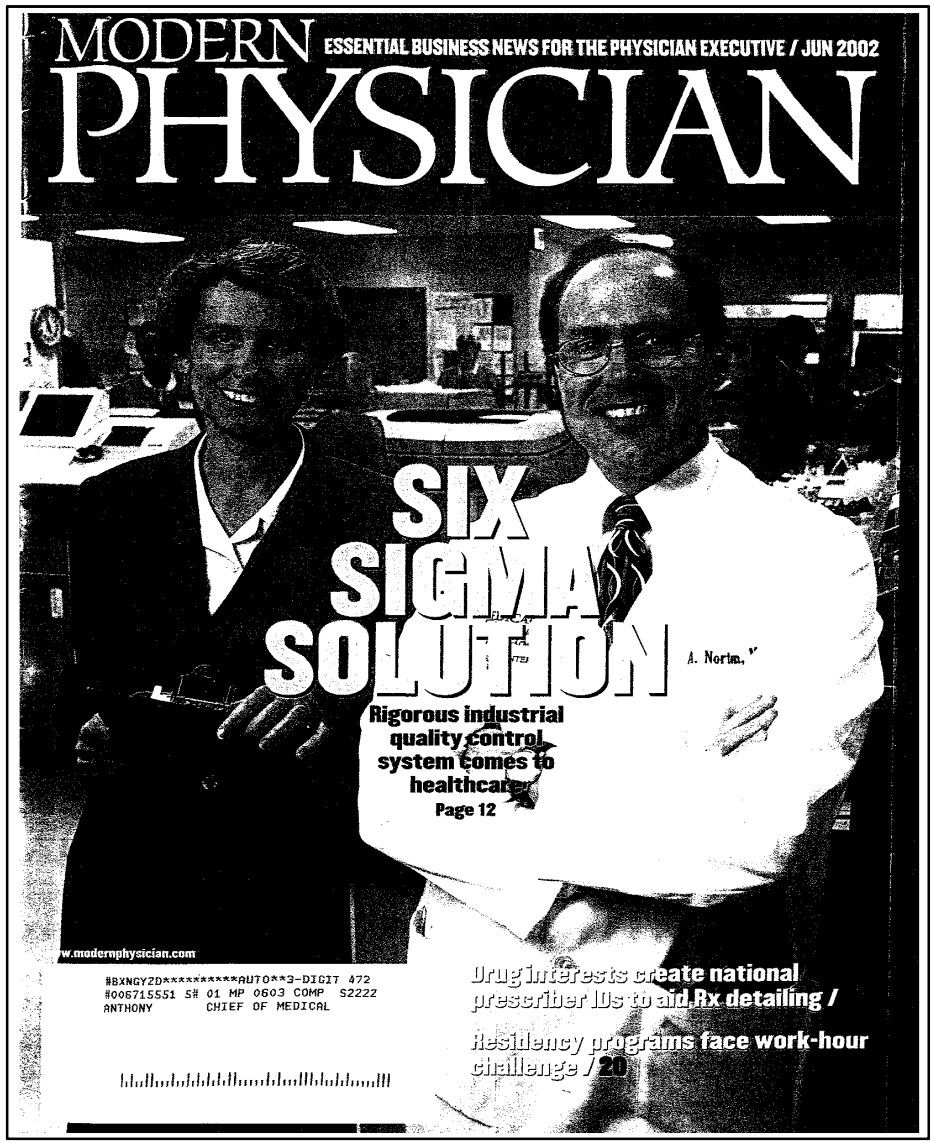
Case Study:

A Successful 6σ Deployment

Commonwealth Health Corporation

Six Sigma Deployment



OTHER PIONEER STORIES

Like Froedtert, Chicago's Northwestern Memorial Hospital, Missouri's Heartland Health and Kentucky's Commonwealth Health are six sigma pioneers.

Commonwealth, an integrated delivery system based in Bowling Green, Ky., has completed 150 six sigma projects since 1998, working in conjunction with General Electric Medical Systems.

Highlights at Commonwealth so far include slashing radiology costs from $68 to under $50 per procedure, improving billing cycle times to produce $276,000 in annual savings since 1999, and reducing errors in the MRI ordering process by 90%.

"We view six sigma as a culture change rather than a dollar return," remarks Jean Cherry, executive vice president of Commonwealth.

Six sigma also is making inroads in nonacute care environments. Working with Scottsdale, Ariz.-based Six Sigma Academy, one of the oldest six sigma

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Commonwealth Health Corporation (CHC)

- Non-profit health care organization in Bowling Green, KY
- 3 medical centers, 518 beds in total
- Annual revenue: $350+ million
- Spends almost double (vs. other hospitals) the percentage of total operating expense on indigent and free care
- Was under increasing pressure to
  - Deal with lower **reimbursement rates**
  - Mitigate the impacts of the **Balanced Budget Act**
  - Respond to increased **consumer awareness and expectations**

CHC Motivation for Six Sigma Deployment

- CHC leadership wanted to
  - Increase employee motivation
  - Build more effective teamwork
  - Transform the organization culture
- Objectives focused more on **customer satisfaction** and **quality of care** than on **financial benefits**.
- CHC had experience with **various quality initiatives**, all of which delivered a measure of success, some of which are still in use.
- None of the various quality initiatives entirely fulfilled the organization's objectives for excellence, therefore many at CHC still felt a need to **take performance to a new level**.
- Late **1997:** President and CEO John C. Desmarais *(pronounced "Dem-uh-ray")* learned about Six Sigma at a conference where GE's Jack Welch spoke.

"Six Sigma will become the missing capstone to the pyramid of quality we've built over the years."

CHC Six Sigma Initiative – Getting Started

- March **1998**: CHC signed a contract with Healthcare Solutions, a division of GE Medical Systems, to help it launch a full-scale Six Sigma initiative.
- Desmarais held an initial visioning session with his staff during which long-term objectives were determined, including becoming a true Six Sigma organization by the year 2004.
- Leadership team identified four **key priorities** for Six Sigma deployment:
  - Customer satisfaction
  - Quality of care/service
  - Timeliness/speed/convenience
  - Cost
- Following development of a long-term **deployment plan**, initial technical training sessions began.
- GE Healthcare Solutions provided two unique training experiences to address 'soft' issues, as part of the Six Sigma methodology:
  - Change Acceleration Process (CAP), a change management process intended to help facilitate the organizational change required for Six Sigma to be effective
  - WorkOut, a participatory problem-solving process designed to address bureaucracy and other organization issues (rather than technical issues)

CHC Six Sigma Initiative – Deployment Strategy and Initial Results

- CHC leadership identified a four-phase deployment strategy for Six Sigma
  - Phase One: Radiology
  - Phase Two: Hospital-wide management training and projects
  - Phase Three: Billing
  - Phase Four: Self-sufficiency (without GE)
- Radiology department was initial point of focus to accomplish some 'quick hits' to develop momentum.
  - 12 radiology employees took Green Belt (GB) training including CAP and WorkOut
  - GE employees fulfilled the Master Black Belt (MBB) role, providing technical support
- Impressive tangible results
  - 25% increase in radiology throughput using fewer resources
  - 20+% decrease in cost per procedure
- These results obtained by
  - reducing wait times for patients
  - providing faster turnaround for radiology reports
  - increasing productivity in several areas

Project Examples . . .

CHC Sample Projects in Radiology

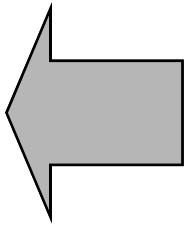
- Reducing time between report dictation and report signature
- Reducing patient wait time from arrival in radiology to time of exam
- Reducing time between patient dismissal and dictation completion
- Reducing patient wait time for radiology registration process
- Enhancing radiology scheduling process
- Reducing time from radiologist signature to report distribution
- Increased efficiency in the MRI ordering process
- Optimizing the content quality and delivery of pre-exam patient education
- Reducing time for dismissal of radiology patients
- Enhancing film jacket retrieval process
- Decreasing MRI report turnaround time
- Improving general radiology staff scheduling
- Increasing efficiency of ultrasound exam scheduling and reducing overtime
- Utilizing special procedures inventory more efficiently
- Augmenting radiology exam scheduling and preregistration process
- Reducing CT order to taken time
- Decreasing IVP exam time
- Improving utilization of nuclear medicine radio-pharmaceuticals

Phase Two: Hospital-wide management training and projects

- Enterprise-wide intensive training initiative for 74 managers over a period of 6 months

  Each 10-day Six Sigma training session also included…
  - CAP
  - WorkOut
  - Team Effectiveness

- Training was immediately applied to projects in such areas as
  - Patient registration
  - Employee empowerment
  - Communication flow
  - Customer service
  - Human resources
  - Medication process



Sr. Leadership felt these tended to be under management control (rather than worker control) and would require higher level managerial action to solve

- This drove various layers of management to become actively involved in the deployment, resulting in a perceptible culture shift toward greater teamwork and visible support of Six Sigma.

- Medication process team received honorable mention from Abbott Labs at the annual meeting of the American Society of Health Systems Pharmacy and received a grant on the basis of their project (RE: Medication Errors).

CHC Phase Three: Billing

- Focused on the billing process, where small improvements in effectiveness can have huge payoffs.
- November 1998: First wave of GB training began with 15 participants from various departments and looked at the entire billing system.
- Senior leadership designated 16 managers as “Shadows”
  - to assist GBs in their efforts
  - to participate in the training
  - to ensure that managers learned more about Six Sigma “from the trenches” by observing the flow of the projects firsthand
- The team worked together to identify potential high-impact projects for the GBs by employing project selection methods.
  - Identifying key indicators for the billing process vision
  - Developing high-level billing system maps
  - Defining high-level CTQs (critical to quality variables)
- Sample projects
  - Reducing billing cycle time
  - Improving efficiency of charging procedures
  - Reducing the number of bills returned by the postal service

CHC Phase Four: Self-sufficiency (without GE)

- Focused on enhancing CHC's internal ability to drive the initiative and deliver tangible improvements.
- Until this point, GE Healthcare Solutions was providing technical support via MBBs, with CHC resources primarily in Shadow or GB roles.
- CHC named
  - First 2 Black Belts
  - Facilitators of the CAP and WorkOut processes
  - MBBs were eventually named.
- CHC was now becoming self-sufficient to drive improvement throughout their organization.
- Awareness training was given across the board.
- 'Lite' training (3 days of instruction) was given to individuals who participated on Six Sigma project teams to enable them to contribute to projects as a team member.

CHC Six Sigma Initiative – Results

Tangible Results

- Within 18 months of beginning the deployment in radiology,
  - Avg cost per procedure went from about $68 to $50.
  - X 100,000+ radiology procedures per year
  - ~$1.68 million in savings annually
- Targeted projects reduced errors in MR ordering process by 90%.
- Impressive results led to publications in industry journals and visits from other health-care providers to benchmark CHC.
- CHC has been invited to share their success story at health-care conferences around the world.

Intangible Benefits

- Within 6 months, overall employee satisfaction survey results improved by 20%, especially in the areas of
  - Teamwork
  - Patient-centered decision making
  - Understanding of the organization's direction

CHC – Expansion of the Effort

Encouraged by the early results, CHC leadership expanded the focus of Six Sigma deployment to additional functional service areas and clinical service lines.

Projects In Functional Service Areas

Admissions
- Patient identification bands
- ER admissions process

Documentation/Charge Entry (Billing)
- Pyxis projects (automatic dispensing of medications)
- Charge capture in outpatient (accurate billing amounts)

Human Resources Employment Processes
- Hiring process
- Employee evaluations
- TB skin tests

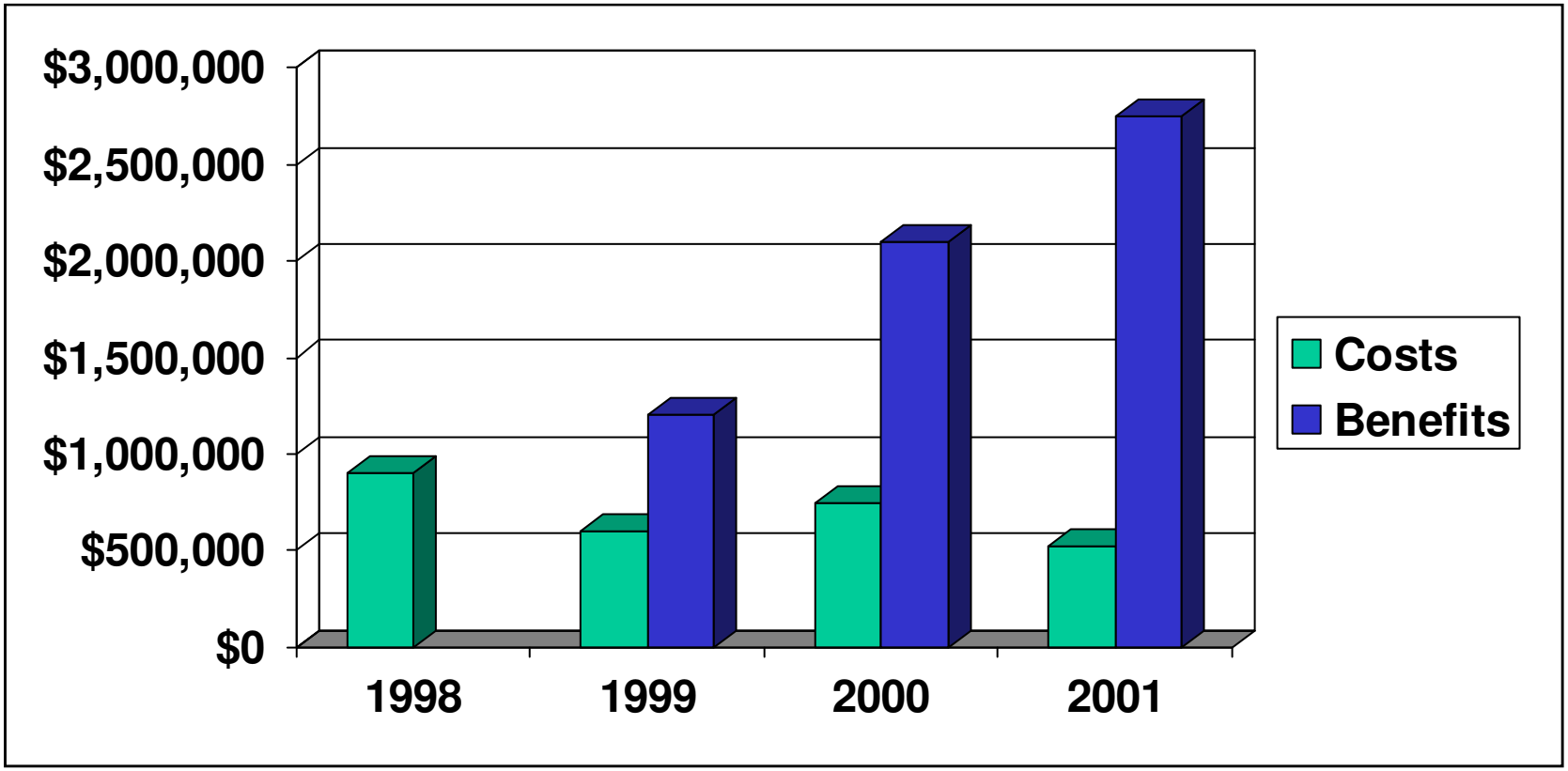
Projects In Clinical Service Lines

Pulmonary-Related Illnesses
- Length of stay for congestive heart failure
- Pulmonary-function tests
- Pneumonia patients switched from IV to oral medication

Maternal Care
- Decision-to-incision time for emergency C-sections
- Urine screen vs. urinalysis testing for moms

Surgery Processes
- Surgery scheduling process
- Time from holding to surgery (inpatient and outpatient)
- Turnaround time for operating room suites
- Surgery staffing patterns

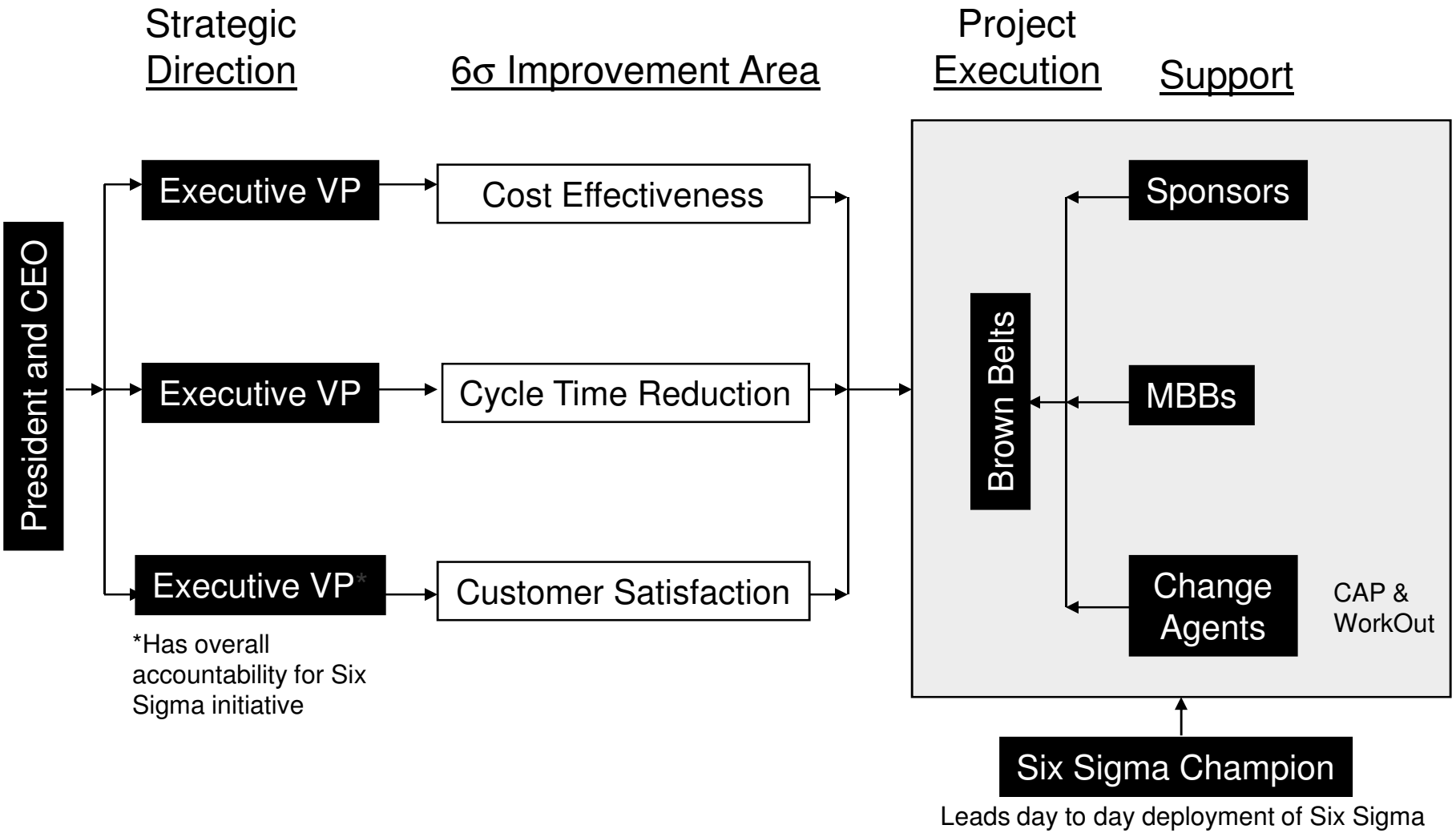
CHC financial benefits from Six Sigma deployment grew as the deployment expanded.



CHC – Current Status

- **As with anything new, there was some initial resistance to Six Sigma.**
  - It will be a short-lived 'flavor-of-the-month.'
  - It's a well-camouflaged scheme to reduce the workforce.
  - Will I lose influence when data-based decisions replace functional decisions?
- **Several keys to overcoming resistance**
  - CAP tools designed to address human rather than technical issues
  - CEO Desmarais's unwavering leadership – "Six Sigma was made non-negotiable."
  - Seeing is believing – positive benefits of data-based decision making (e.g., quicker, less bureaucratic decisions) turned resistance to support.
- **CHC has created new positions within their organization to support Six Sigma.**
  - Full time Six Sigma Champion (overall leader)
  - Logistics coordinator for all Six Sigma training: temporary position needed when the organization was ramping up Six Sigma
  - MBBs: responsible for all training and development of training materials
- **MBBs created a computer simulation of the patient registration process.**
  - Allows students to walk through each phase of a Six Sigma project
  - Clearly demonstrates project flow and how the output of one tool forms the input to the next
  - Enables students to immediately apply what they are learning to a relevant process

CHC - Organization to Support Six Sigma



CHC's Key Lessons Learned

- Commitment from the top is critical.
- Identify and address pockets of resistance.
- Ensure that top-talent employees are selected for Six Sigma roles.
- Focus on project selection and make sure projects are tied to strategic goals.
- Emphasize the need for tangible financial results -- and validate them.
- Should view Six Sigma from a holistic perspective, as a culture change rather than just a quality methodology.

"I only wish we had done this five years earlier… the competitive edge the organization has gained through this process is incredible."
- John C. Desmarais, CHC President and CEO

(End of CHC Case)