

# *e-Perspectives*

*on the Medical Transcription Profession*

July 2005  
Issue 51

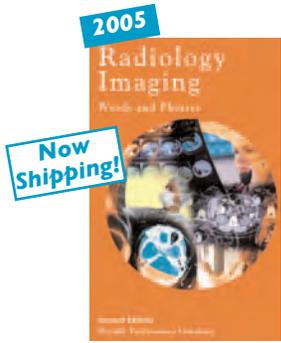
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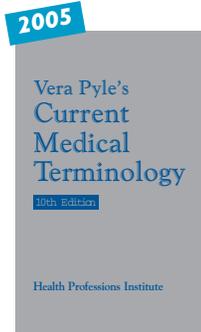


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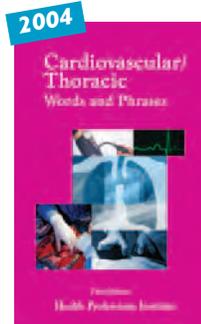
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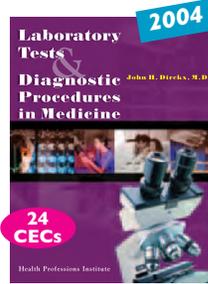


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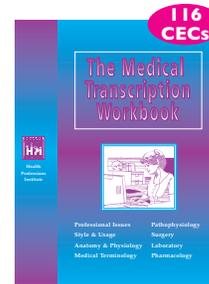


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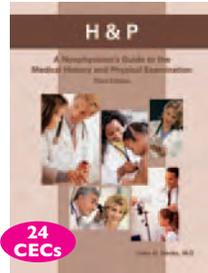


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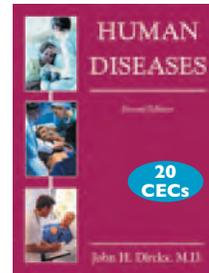


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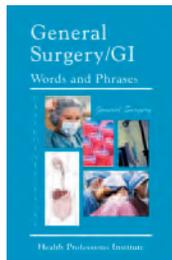
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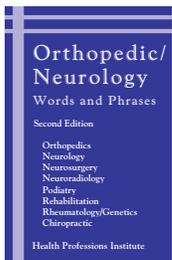
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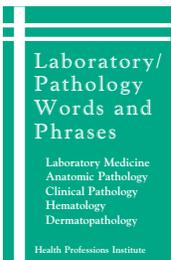
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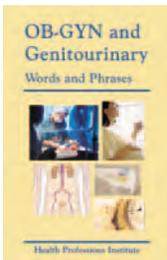
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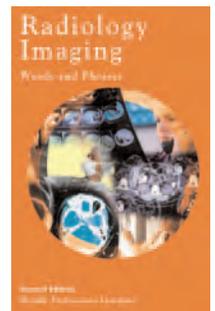
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# e-Perspectives

on the Medical Transcription Profession

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## Summer at the Beach

I'm not really spending the summer at the beach. Just doing some wishful escapist thinking.

The problem is *not* that I don't have the means and opportunity to spend the summer at the beach or anywhere else in the world I wish. The truth is that, for the first time in my long life, I don't have the *desire* to travel or have adventures at some exotic place in some other part of the world. Fortunately, during our 42 years of marriage, my husband (now retired after 32 years of teaching geography to thousands of college students) and I traveled all over the country and to Canada, Mexico, and the Caribbean, and many times to countries in Western and Eastern Europe. We have fond memories of our travels and the many adventures we've shared and the numerous people we have met over the years. But at this time in our lives, we are grateful that we did not wait until we *retired* to travel. So many people do that and then when they are older, they don't have the health or sufficient resources to travel as they wish. My advice to all my friends under the age of 50 is to travel while you are young and healthy and can enjoy it. You don't know what the future will bring. If you still feel like traveling when you are older, great! You can just do it all over again.

This is the 51st issue of *Perspectives* magazine, which has evolved over 15 years of publication to its present electronic format. As an e-zine, *e-Perspectives* is now available to a wider and wider audience of healthcare professionals who value the substantive original articles we publish. *e-Perspectives* is now available worldwide to anyone with an Internet connection. The PDF articles may be downloaded and printed by those who want a print copy for reference.

In this issue of *e-Perspectives*, Sidney Moormeister walks down memory lane as well, and she looks back at the rich work experiences she has had in the medical transcription industry. She "found her place within the maze" and offers tips to others new to the field on how they can find their niche. "It's not for sissies," she warns.

Phil Cohen knows the importance of growth capital for medical transcription businesses, and in this issue he provides helpful advice to business owners who daily struggle to survive the slow-paying healthcare accounts they service. Understanding how the system works and how you can work within it can mean the difference between merely surviving and succeeding masterfully.

Six years ago Linda Campbell wrote an essay on "The Four-Semester Myth" to combat the narrow-minded thinkers of the time who thought that the only appropriate setting for medical transcription students to learn their craft was in a two-year degree program. Linda argues it is the number of *practice hours* (at least 500 hours) that produces competency, not the number of semesters. We decided that it's worth repeating this article from our archives.

Rich Lederer provides a quiz on U.S. presidents to test our knowledge of our national leaders' "firsts, onlys, and mosts." Just for fun.

John H. Dirckx, M.D., dazzles us, as usual, with his interesting and informative essay on various cosmetic and aesthetic surgeries and treatments for facial rejuvenation. Many of these processes have been popularized through recent television programs extolling the latest "extreme makeover" efforts of not only the rich and famous but also fairly ordinary people who strive to rejuvenate or fix whatever is wrong with "the face." This article surveys many chemical and surgical procedures for reversing the facial signs of aging as well as improving on Nature.

Four pages of What's New in Medicine complete this issue. Many of the new terms are drawn from the 10th edition of *Vera Pyle's Current Medical Terminology* (2005), but a few are drawn from subsequent research for the second edition of HPI's *Radiology Imaging Words and Phrases* (2005), which will be available in late July.



Sally C. Pitman

# Today's Transcription Cornucopia: Finding One's Place Within the Maze

by Sidney K. Moormeister, Ph.D.

Two roads diverged in a yellow wood,  
And sorry I could not travel both  
And be one traveler, long I stood  
And looked down one as far as I could.

Robert Frost, *The Road Not Taken* (1.1-4)

**M**y involvement with the world of medical transcription has been sporadic and has spanned four decades. Originally sampled as a way to support myself through graduate school, medical transcription quickly became my proverbial golden goose. It became my funding source for my doctoral studies. Decades later after disability forced early retirement from academia, it provided a way to work while I was housebound. It now provides a steady income to support the works of the small Franciscan community to which I belong. Medical transcription, while neither an endowment nor a trust fund, has been a wonderful source of support—and a field which has provided constant challenge and enjoyment.

Today's world of transcription bears little resemblance to the world which I was allowed to enter in 1968 based solely on my premedical education and ability to turn a clever phrase. Today's world is much more sophisticated, challenging, demanding, and yes, lucrative. (My first job earned me the princely sum of six hundred dollars a month and I felt, well, like a princess.)

I recently posed the question of how to find one's place in the medical transcription world on a chat board called MT Chat. (I highly recommend this resource to anyone in our profession. It can be found at: [www.MTChat.com](http://www.MTChat.com).) The participants have varied backgrounds. Highly successful medical transcription service owners (MTSOs) with decades of experience freely share their advice with newbies and wannabes. While we by no means always agree on points of view (nor should we), we participate in a give-and-take dynamic which is not only helpful but inspirational.

Some dynamic and useful ideas were expressed in answer to my question. Here are some nuggets of wisdom that arose from our discussion. I present them in no particular order of

importance, hoping instead that you will prioritize them according to your own needs, taking and implementing what is helpful to you.

**1. Make a “wait and see” assessment of all of the possibilities open to you, then do something positive to move toward implementing one or more of them.** Start small. It is unrealistic to suppose that as a newly-minted MT, you are going to be able to engage in head-to-head competition with a large national in a wide area. You may be able to beat the big guys on a small scale (one or two contracts) and build from there. (Who knows, your fledging company may, over time, evolve into the next big national; the caveat is that these things generally come incrementally rather than overnight.) Do not be afraid to bid against the big folks. I know several people who have done so and won.

**2. Ask tough questions and demand clear answers.** Whether you are evaluating your first contract or making expansion plans, ask probing, pointed questions designed to yield the information you need. If that information cannot be provided, you need not deal with those who cannot answer your questions. If they are unclear about the terms of the deal, how can they be clear about on-time payment and other terms of your contract?

**3. Spend a quiet day or evening with yourself and ask, “Who am I, where am I going, and what do I want?”** Be realistic. If you want to sit in the driver's seat as an MTSO, are you honestly willing to put up with all of the grief and endless details that it takes to get you there? Are you a good salesperson? Can you “schmooze” a potential client? (Yes, that is very important.) Or would you be happier working for someone else who will handle all of the details? I work for a huge national company. I do not want to be bothered with billing, soliciting clients, troubleshooting day-to-day problems, and the myriad of endless details that pop up like snakes on the head of Medusa throughout the day. I want to plant my seat in the seat, focus all of my attention on giving a quality product at the highest speed possible, and be finished for the day. My national has

superb technical support, there is plenty of work, and my check has never once been even a day late. This “hands off” style works for me. Others might indeed want to sit in the driver’s seat. Knowing what one wants is the first step to getting it.

**4. Know yourself, be honest with yourself, and be true to your needs.** Being honest with oneself is essential to making an informed choice among the seemingly countless opportunities in today’s transcription marketplace. Knowing yourself needs to be coupled with the next step:

**5. Play to your strengths.** Although I am a board-certified forensic examiner and routinely work with sophisticated questions of chemistry, I cannot seek a career as a CPA or try to enroll in business school. My own CPA teases me endlessly about the fact that I do chemistry all day but cannot balance a checkbook. I retort that checkbook math is processed in a different part of the brain than chemistry math. And there may be truth to that, since my CPA admits that he nearly failed Chemistry 101. The moral of the story is to play to your strengths.

**6. How broad is your vision?** Visualize where you want to be five years from now. How do you conceive getting there? I frequently make use of a technique called “mind mapping.” You simply take a blank piece of paper and write down all of the various ways of achieving what you want. Don’t even be concerned about writing neatly or in an orderly manner. This is brainstorming on an individual scale. You are not allowed to criticize your choices or statements. Just throw them all out there to be seen and evaluate them dispassionately. There is something about this process that lends itself to clarity.

**7. What pleases you?** At the end of the day, what will give you satisfaction? Money? A title and a corner office? More time with your family? The opportunity to be at home with your children? Don’t make your choice based on what you “should” do—base it on what pleases you and meets your needs. You are not entering the medical transcription world to please someone else (as least I hope you aren’t); you need and deserve to have your needs met.

**8. Count your blessings.** The process of finding one’s niche is not for sissies. Just as you have to kiss a lot of the proverbial frogs in order to find the right prince (or princess), so must you pay your dues in the world of medical transcription. This sometimes means working undesirable shifts, putting up with less than adequate bosses, and gritting your teeth as you learn to accommodate to the unique accents of the ubiquitous ESLs (physicians who speak English as a second language). If you can do all of this with equanimity, with a smile on your face and with hope in your heart, you will survive and succeed. During times of challenge, I actually pull out my journal and write a list of my blessings, the things that make my life real and bearable. Somehow the world looks brighter after I do that.

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*The process of finding one’s niche is not for sissies. . . . This sometimes means working undesirable shifts, putting up with less than adequate bosses, and gritting your teeth as you learn to accommodate to the unique accents of the ubiquitous ESLs.*

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**9. Remember that finding one’s place requires a different process than that of acquiring knowledge.** As one seasoned MT put it, it is a process of discovery rather than knowledge-gathering. Knowing the difference between the two is crucial.

**10. Be true to yourself.** To me, this is the most important part of any search; it is the foundational bedrock upon which your career will be based. Do not compromise your ideals or desires. Do not support individuals or organizations whose ethics do not reflect your values. Do not listen when people tell you it cannot be done.

There is a famous story about Robert Fulton’s invention of the steamboat. As he was preparing to launch it, the awaiting crowd chanted, “You’ll never get it started.” Once the steamboat was powerfully making its way down the river, the crowd began to chant, “You’ll never get it stopped.”

Don’t listen to naysayers and predictors of doom. Our profession is not going anywhere but up. You can ascend with it if you will be true to yourself and never, EVER give up.

Sidney K. Moormeister, Ph.D., holds doctoral degrees in forensic sciences and forensic psychology. After 20 years in consulting practice in San Francisco, she now resides in Salt Lake City, where she is an advocate for the rights of the disabled and homeless populations. She is writing a children’s book in French. Her secret desire is to own an alligator. E-mail: [francis@techguy.net](mailto:francis@techguy.net)



# Managing Cash Flow

## Surviving the Slow Payers

by Phil Cohen

**H**ave you ever wondered why the hospitals you work for take so long to pay their invoices? What if I were to tell you that there is an enormous financial paradox involving our country's healthcare system, and that it may affect the way your transcription service operates? Allow me to elaborate.

The U.S. spends a larger portion of its gross domestic product (GDP) on healthcare than any other country. For example, in 2003, 15.3 percent of the United States' GDP was spent on healthcare, totaling approximately \$1.6 trillion, and it's projected to reach \$3.4 trillion by 2011. (See Figure 1.) Budgeting trillions of dollars for our healthcare system seems like a great way to benefit so many Americans. Yet there's an underlying irony—two-thirds of America's 5,000-plus hospitals are either operating in the red or are barely breaking even. It doesn't take a rocket scientist to realize that the numbers aren't adding up, but who's to blame for this financial crisis?

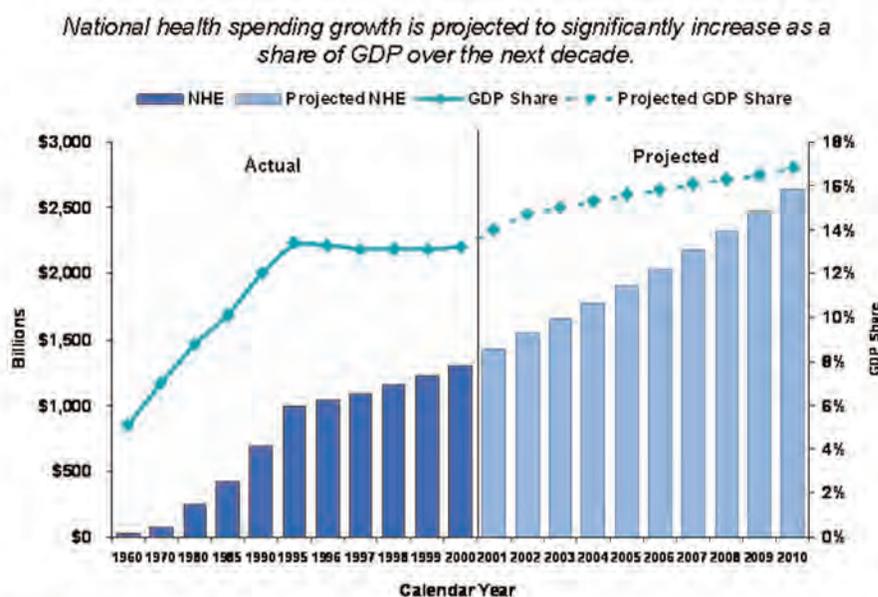
Most point the finger at hospitals, claiming that they are not using their allotted funds appropriately. In reality, there are a number of culprits involved. An aging population, an increasing number of uninsured Americans, and slow-paying government aid programs all play a role in cramping the budget of the American healthcare system.

Our nation's population has aged significantly over the past 50 years. The Baby Boomers are on the verge of beginning to celebrate their 65th birthdays, creating a massive surge in the elderly adult population and placing pressure on our nation's healthcare system. (See Figure 2.) During the 21st century, elderly Americans will need additional health-related services to treat and manage their medical conditions. Not to mention, there will be over 40 million retired elderly adults depending solely on Medicare to cover their medical bills next year, which is a problem that I will delve into later within the article.

On the other hand, a large portion of our younger generations are not insured at all. The *2003 Chartbook on Trends in the Health of Americans* reported that in 2001, adults aged 18-24 were most likely to lack health insurance coverage (over 16 percent of the American population under the age of 65 went without for the year). In addition, the *Denver Post* reported that the number of uninsured young adults aged 25-34 jumped dramatically in 2003, from 9.8 million to 10.3 million. Rising health insurance premiums and overall poverty rates are both contributing to this problem.

Expensive healthcare premiums make it hard for employers to afford coverage for their employees, which creates an uninsured working class. According to the *Washington Post*, the proportion of the working class who received health insurance through their employers reached the lowest level in a decade in 2003 at 60.4 percent. To make matters

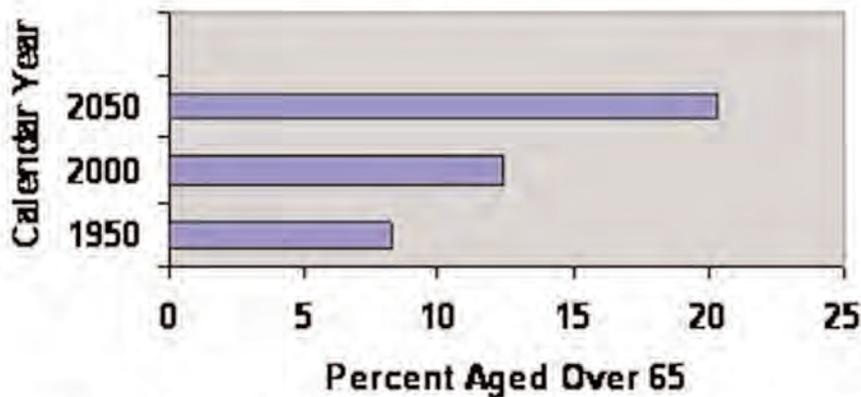
**Figure 1**  
**National Health Expenditures and Their Share of Gross Domestic Product (GDP), 1960-2010**



Source: CMS, Office of the Actuary, National Health Statistics Group.

Figure 2

## Percent of U.S. Population Aged 65 and Above



Source: *Chartbook on Trends in the Health of Americans, 2003*

Medicaid and Medicare are notorious for paying medical institutions slowly, oftentimes taking months to deliver funds. Keep in mind that these government-mandated reimbursements are also capped, and in many cases, they don't cover the actual cost of providing care. As a direct result of their inadequate financial resources, hospitals and clinics are forced to make cuts in staffing and decrease technological advances to help defray costs, all of which can be harmful to their patients and place stress on the remaining staff.

With all that said, it's easy to see how the healthcare facilities are affected by this cash crunch, but you may be asking: **How does this affect my medical transcription service?**

worse, 20.6 million of those working uninsured people were full-time employees.

Add in the fact that emergency rooms are obligated to care for any patients that come through their doors, regardless of whether they have insurance or not, and what do you get? Answer: Millions of uninsured people who visit the emergency room to receive medical attention and who are also relying on the hospital to foot the bill.

In addition, the U.S. Census Bureau reported that there were 34.6 million less fortunate people living in America in 2002, and the number is still growing. Members of this underprivileged class are forced to either go uninsured or rely on Medicaid for their medical bills, and neither option is a promising solution to the healthcare financial crisis.

Title XIX of the Social Security Act, commonly known as the Medicaid program, is the largest source of funding for medical services for America's poorest people. Since its launch in 1965, Medicaid's reimbursements have rapidly increased, with cumulative spending reaching \$250 billion in 2002, 11.7 percent higher than reimbursement payments during the previous year.

Likewise, the Medicare program was created in 1965 under title XVIII of the Social Security Act, and it currently covers 41 million Americans. Designed to provide basic medical coverage for adults aged 65 and above who are no longer working and are unable to pay for healthcare, Medicare's reimbursements have also continued to increase over the years. Collective spending reached \$267 billion in 2002, reflecting an 8.4 percent increase since 2001.

Although Medicaid and Medicare can be beneficial for less fortunate and elderly Americans in need of healthcare, American medical institutions don't fare quite as well in the healthcare cash flow crisis because they have to wait so long before they can be paid.

Simply put, another good way to cut down on costs is for medical institutions to pay their own invoices in order of perceived importance. For example, hospitals will provide their vendors with terms of net-30 or net-60, to make sure that their most urgent invoices (utilities, payroll, insurance, etc.) are paid first. Inevitably, here is where your business enters the equation. As is the case with other vendors serving healthcare institutions, your medical transcription service may be suffering from this slow payment structure.

Starting up or expanding your own business can be a difficult task, especially if your clients are taking months to pay for your services. You may find it difficult to bridge the gap between the time it takes for your clients to pay you and the time when you have to pay your transcriptionists. Or perhaps your entrepreneurial dreams of expanding your transcription service and hiring additional transcriptionists are overshadowed by the fact that you do not have enough present working capital to help your business grow.

As bleak as all this may sound, there is hope for succeeding in the medical industry, and it revolves around **preparation**. Now that you have a thorough explanation of the healthcare cash flow crisis and you understand how it could affect your medical transcription service, you have the knowledge to structure your business in such a way that it can sustain a system of slow payers.

There are a couple of ways to arrange your transcription service to help combat lethargic payers. First and foremost, do your homework. Run a credit check on your potential clients before you even think about doing any business with them. This will give you a better idea of how long it takes for hospitals to pay their bills. A credit report shows you what percentage of a hospital's bills are current, what percentage is

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*Run a credit check on your potential clients . . . A credit report shows you what percentage of a hospital's bills are current, what percentage is 30, 60, 90, or even 120 days out, and if accounts have been written off due to default.*

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30, 60, 90, or even 120 days out, and if accounts have been written off due to default.

Never hesitate to go directly to the source. Another way to check up on how a potential client pays is to establish contact with someone in the hospital's account payables department. Oftentimes, a hospital will provide you terms of net-30 in a contract, but that does not necessarily mean that you won't be paid on day 31 or day 63 or day 92. The A/P department might tell you that checks are usually cut 30 days after they are due, which means that the net-30 contract you just signed is actually a net-60 contract.

Also, it never hurts to ask around town. Don't be afraid to call up other vendors serving hospitals in your area. Personal experiences can mean so much in this industry, so if you know someone who works for ABC Hospital, and you're thinking about doing business with them, ask the other vendor what it's like working for ABC.

Even after you start transcribing for ABC Hospital, don't let up. Make sure to send out your invoices in a timely manner. If you wait weeks to send out your invoices, the clock keeps ticking, which means that you will end up waiting even longer to be paid. Follow up on your invoices. Make sure that the health information department has received them and that they have been signed and forwarded to accounts payable. Confirm with accounts payable that your invoices are in their system and establish when they are scheduled to be paid. Make note of when you should expect payment. Follow up if you do not receive payment within the expected time period. It is important to monitor your accounts receivable carefully so that you know when a client's aging is going out further than you would like. Take the time now to make collections calls on a regular basis to prevent a potential problem in the future.

Just remember that you *can* run a successful transcription service because hospitals are great payers—they just take longer to pay than a lot of businesses are prepared to handle. Like any other industry, it's important to understand your clients so that you can better serve them. Knowing that your clients are paid slowly and that they will most likely be forced to pay you slowly presents a way for you to adapt your business to your clients' needs. Operating your business with your clients in mind allows for greater overall productivity, which then leads to superior customer satisfaction and the ability to land additional contracts.



Philip Cohen is the President of PRN Funding, LLC, an accounts receivable factoring company that provides growth capital to small and mid-sized businesses that service the healthcare industry. Prior to founding PRN Funding, Cohen served as the Senior Vice President/General Manager of The MRC Group, where he was responsible for corporate development initiatives as well as the company's speech recognition product line. Web site: [www.prnfunding.com](http://www.prnfunding.com) E-mail: [pcohen@prnfunding.com](mailto:pcohen@prnfunding.com)

# The Four-Semester Myth

*Given a certain set of criteria, it can be predicted with accuracy that it takes about 500 hours of transcription practice to produce an entry-level medical transcriptionist.*

by Linda C. Campbell, CMT

As the concert pianist walked onto the stage, a round of enthusiastic applause swelled from the audience. Her walk was regal, her countenance serene. As she made her way toward the Steinway in center stage, she nodded her head in the direction of the patrons in acknowledgment of their praise.

She poised her hands over the piano keys; then her fingers began to dance over them, coaxing from them incredible sounds. The strains of Rachmaninoff's Piano Concerto No. 3, delivered with delicate precision and emotion, filled the auditorium. My ten-year-old daughter, Samantha, and I exchanged glances of wonderment as the artist's fingers moved up and down the keyboard—effortless, expressive, consuming.

At the conclusion of the performance, a standing ovation, and several curtain calls, we stepped out into the night air feeling dazzled and happy, talking about what we had just seen. What made this one so special? We had been to the symphony before; certainly we'd seen other piano performances. But tonight's was different.

We tried to identify the qualities that set this artist apart from others we had seen. She was trained in the classics, that much was obvious; she had the aptitude, the desire to excel, the drive to practice to perfection. But it was more than that, we decided. It had to do with having "the ear," the ability to understand the nuances the composer envisioned, being able to translate that mentally so that the music flowed from her head through her fingers to the keys.

The subject changed to tomorrow's activity schedule. Samantha had school, I had work. She reminded me of my promise to give her a copy of *The Medical Transcription Workbook*, a project that had all but consumed me the previous summer. She enjoys reading about medical transcription and

looking through all of my reference books, but she long ago decided she wants to be a doctor.

Not wanting to miss the opportunity to explain the importance of medical transcription to a future doctor, we talked about the process of transcribing—or translating—the spoken word into written language.

Translation is an interesting process. It cannot be done by one who is not thoroughly versed in two languages. As a child I remember watching the movie *Fail Safe*, where the fate of the world rested squarely on the shoulders of the man who translated Russian to English. Larry Hagman (pre-*Jeannie* and *Dallas*) portrayed the character whose job it was to interpret not just what the Russian premier was saying, but all the nuances as well that might provide a clue to what the premier was thinking. The wrong interpretation could end the world.

It became my responsibility in recent years to prepare permission slips for Girl Scout outings. It was an unremarkable task, for the most part, until I was faced with the monumental last-minute challenge of translating a permission slip from English to Spanish. Equipped with my high-school-level Spanish skills and a Spanish-English dictionary, I began the arduous task of translation. It was not easy, and I knew that word-for-word translation from English to Spanish might not properly convey the intended meaning. The next day a friend who was fluent in both languages checked my effort. I was disappointed, but not surprised, to find that I had consistently missed the mark. The words were all there, but their sequence was often wrong, and I overlooked the fact that I had learned Castilian Spanish as opposed to colloquial Spanish. It was like the difference between British English and American English.

To learn a new language, one must not merely study but actually use the knowledge in verbal exchanges with those who

## PIANO

Music theory  
Practice on authentic piano  
Progress from simple to complex  
Utilize a variety of music  
Repetition  
Mastery

## FOREIGN LANGUAGE

Language theory  
Practice learning nouns and verbs  
Progress from simple to complex  
Utilize a variety of words and phrases  
Repetition  
Mastery

## MEDICAL TRANSCRIPTION

Transcription theory  
Practice on authentic dictation  
Progress from simple to complex  
Utilize a variety of dictation  
Repetition  
Mastery

are fluent. It's not something that can be merely taught—it must be experienced. Formal instruction is the frame; practice and repetition are the picture.

*It's the same with music.*

*It's the same with medical transcription.*

There has been, and continues to be, great debate surrounding “the making of a medical transcriptionist.” There is the theory that if medical transcription were a degreed profession, it would garner respect and acknowledgment as a legitimate healthcare profession in the eyes of the medical community.

Then there's the opinion (and I cringe as I write this) that medical transcription is “just typing medical words.” This is an opinion that is shared by many physicians, administrators, and even supervisors—not all of them, of course, but enough of them to keep medical transcription in the basement (figuratively, and sometimes literally). Certainly it has helped keep compensation from increasing commensurate with that of other healthcare workers over the last 20 years.

To combat this skewed philosophy, leaders in the medical transcription industry have strived admirably, if not effectively, to turn things around. Not long ago I participated in a curriculum-writing session with a group of very talented and well-respected transcriptionists. Our goal that day was to improve an association's curriculum and bring it up to date. One of the workshop leaders was a very outspoken woman, a leader in the medical transcription community. She was adamant about four semesters and was convinced the two-year degree program was the best environment in which to teach medical transcription. She also believed it was the key to achieving recognition for working MTs. She was eloquent, passionate, persuasive, and rigid. And she was wrong.

It is the number of practice hours that produces competency, not the number of semesters.

It's the same with music.

It's the same for interpreters.

Recognition comes with competence. Competence comes with achievement. Achievement comes with repetition and practice. Here's a true occurrence that illustrates this point.

A bright, articulate woman who taught medical transcription at the community college level was anxious to show me her four-semester associate-degree MT curriculum. She had worked diligently to develop and implement this program, and many prominent people in the MT community considered it to be the zenith of programs—a standard for others to follow. It was with great anticipation that I examined it.

The curriculum included many important ancillary classes. There was medical terminology I and II, anatomy and physiology, basic English review, keyboarding and word processing,

legal issues, hospital records management, and business procedures. There were 1200 clock hours allotted to the entire program over four semesters.

At first pass it seemed ideal. Twelve hundred clock hours! Very few medical transcription programs provided that much time. But a closer look revealed that students would be expected to transcribe only 1-1/2 hours of nonphysician dictation the first year and 6 hours of physician dictation the second year! With a sinking feeling I realized that her students wouldn't have the requisite skills to perform even basic medical transcription. To the instructor's credit, she had a clinical externship (practicum) in place. It was clear, though, that her students would be getting most of their core dictation experience on the job rather than in class. It was totally unnecessary, and it was a bitter disappointment.

In a follow-up discussion with the instructor, I asked her how she came to develop this specific program. It seems she had followed, very faithfully, a list of competencies for building a curriculum. She had even implemented the medical transcription lab according to these competencies. Although there had been provided a specific number of hours for the practicum period, no such guidelines were given for the medical transcription practice lab.

Despite rumors to the contrary, it actually is possible to predict how many hours of transcription practice time it will take to produce an entry-level medical transcriptionist. Most people in a position of authority in this industry refuse to go out on this limb; nevertheless, given a certain set of criteria, it can be predicted with accuracy that it takes about 500 hours of transcription practice (30+ hours of dictation).

This does *not* mean 500 hours transcribing 30 hours of canned dictation.

This does *not* mean 500 hours transcribing six hours of physician dictation.

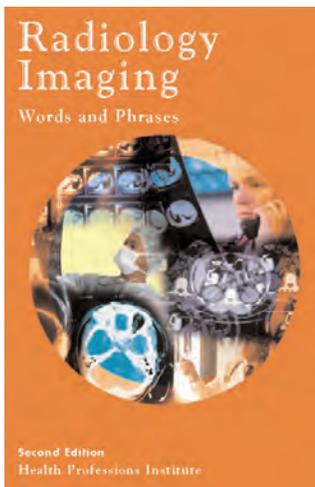
What this *does* mean is 500 hours transcribing hundreds of authentic physician dictations from a variety of dictators, incorporating all report types with varying levels of difficulty.

This method works. It has been proven many times over, especially where *The SUM Program* materials are used. It has been proven with students in formal educational facilities and in other settings, including home-based students.

Am I saying that those other classes—anatomy, terminology, medical science, and so on—are expendable? No, certainly not. Education in these areas, which has historically been lacking in on-the-job-trained MTs, is vital to that knowledge base. These classes should complement medical transcription practice, not replace it. And the practicum should be used to refine and expand the student's knowledge, not teach basics.

Is it possible to have 500 hours of medical transcription practice in a four-semester curriculum? Absolutely. The instructor who had 1200 clock hours could have used 500 of those hours for transcription lab, leaving 700 hours for ancillary classes—plenty of time to accomplish both academic study and technical learning.

These 500 hours can also be incorporated into a technical/vocational curriculum. Health Professions Institute has



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published several versions of sample MT curricula for vocational institutions and traditional community college schedules. These are available free of charge from HPI (see Free Downloads on [www.hpisum.com](http://www.hpisum.com)), and *The Teacher's Manual*.

**W**hether it be piano, foreign language, or medical transcription, the mechanism of learning is the same— theory, practice, repetition, mastery. We must never lose sight of the fact that formal instruction is the frame; practice and repetition are the picture.

“Five hundred hours!” That should be the battle cry, not four semesters.

Linda C. Campbell, CMT, Director of New Product Development, has over 25 years' experience as an MT practitioner, service owner, and instructor. She has worked with hundreds of students and teachers to implement quality MT programs that prepare students for immediate employment. E-mail: [lcampbell@hpisum.com](mailto:lcampbell@hpisum.com)



# Looking at Language

## Presidential Precedents

by Richard Lederer, Ph.D.

**C**an you name the youngest man ever to have served as president of the United States?

If your answer is John Fitzgerald Kennedy, you're not quite correct. Kennedy was, at the age of 43, the youngest man ever to have been elected president, but Theodore Roosevelt became president at 42, when William McKinley was assassinated. When TR's second term was over, he was still only 50 years old, making him the youngest ex-president. William Clinton is the next youngest, having left office at the age of 54.

What American presidents have been impeached?

If your answer includes Richard Nixon, you're wrong again. President Nixon resigned before any impeachment trial. Andrew Johnson and Bill Clinton were tried under the articles of impeachment. Both were acquitted, but, still, they were both impeached.

Try your hand and mind at the following quiz of presidential firsts, onlys, and mosts:

1. Now that you know the identity of our youngest president, who was our oldest president?
2. Who was our tallest president?
3. Who was our shortest president?
4. Who was our fattest president?
5. Who was the first president to wear a beard?
6. Who was president for the shortest period of time?
7. What president had the greatest number of children?
8. Who was the only president for whom one of the 50 states is named?
9. Who were the only presidents for whom national capitals were named?
10. Who was the only president never to marry?
11. Who was the last president born in a log cabin?
12. Who were the only presidents to be married while in the White House?
13. Who was the only president to have been divorced?
14. Who was the only president to serve as chief justice of the Supreme Court?
15. Who was the only president to be survived by both his parents?
16. Who was the only president to have served two nonconsecutive terms?
17. Who was the first president to live in the White House?
18. Who made the first presidential radio broadcast?
19. Who was the first president to appear on television?
20. Who was the only man to have been president and vice president but not elected to either office?

*See next page for ANSWERS.*

Richard Lederer, Ph.D., is the author of more than 3,000 books and articles about language and humor. His syndicated column, "Looking at Language," appears in newspapers and magazines throughout the United States. His new title, *Comma Sense: A Fun-damental Guide to Punctuation*, with John Shore, is now available from St. Martin's Press. E-mail: [richard.lederer@pobox.com](mailto:richard.lederer@pobox.com)



## Answers

1. Ronald Reagan, who became president at 69 and left office at 77. When Reagan died at the age of 93, he was the longest-lived president.
2. Abraham Lincoln, at 6 feet, four inches.
3. James Madison, at 5 feet, 4 inches.
4. William Howard Taft, at 6 feet and 300-352 pounds.
5. Abraham Lincoln.
6. William Henry Harrison died on the 31st day of his presidency.
7. John Tyler was the most fatherly of presidents. He had three sons and five daughters with his first wife and five sons and two daughters with his second. From a single marriage William Henry Harrison was the father of ten children—four girls and six boys, one of who became the father of another president, Benjamin Harrison.
8. George Washington.
9. George Washington (Washington, D.C.) and James Monroe (Monrovia, the capital of Liberia).
10. James Buchanan. During his term in office, his niece, Harriet Lane, played the role of First Lady.
11. James Garfield.
12. Grover Cleveland and Woodrow Wilson
13. Ronald Reagan.
14. William Howard Taft.
15. John Fitzgerald Kennedy.
16. Grover Cleveland, who was both our 22nd and 24th president.
17. John Adams, who moved into the White House on November 1, 1800. He occupied that residence for only four months, having lived most of his term in Philadelphia.
18. Warren G. Harding, in June of 1922.
19. Franklin Delano Roosevelt, on April 30, 1939, at the opening ceremonies of the New York World's Fair. Herbert Hoover appeared on the nation's first TV broadcast in 1927, but as secretary of commerce, not as president.
20. Gerald Ford.

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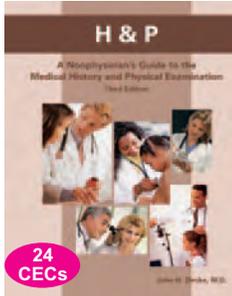


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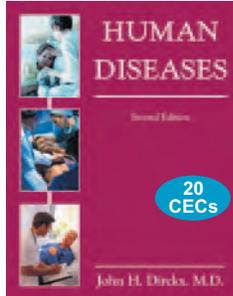
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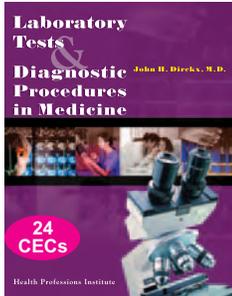
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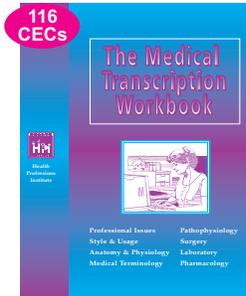
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# Fighting Gravity: Perspectives on Facial Rejuvenation

by John H. Dirckx, M.D.

*"After age 40, gravity takes over."*

—Bumper sticker

**W**e hard-headed realists of the 21st century may have given up the quest for eternal youth, but we haven't yet stopped looking for ways to slow down the clock and maintain at least the appearance of youth, or to restore it once it has slipped away. The principal focus of such rejuvenation efforts is the face—the part of the body that most clearly shows the ravages of time but that is least readily concealed.

Millions of dollars are spent yearly on cosmetics to mask facial wrinkles and irregularities of texture and pigmentation, and millions more on topical moisturizers, conditioners, vitamins, hormones, and antioxidants (not to mention emu oil) to arrest or reverse the signs of aging. More potent agents are available on prescription or for use by physicians.

Plastic surgery, a specialty that began with efforts to correct congenital deformities such as harelip and to improve appearance and function after burns and other severe trauma, has evolved during the past two generations into cosmetic or aesthetic surgery. Nose jobs, breast augmentations or reductions, tummy tucks and apronectomies, liposuction and body sculpturing, and other techniques for improving on Nature or shedding excess weight fast have increased steadily in popularity.

Besides elaborate, invasive facelifts to correct sagging brows, cheeks, and jowls, plastic surgeons can now offer a number of less drastic, less expensive, and less painful ways of reversing some of the facial signs of aging. Statistics show that people are having these procedures at younger ages nowadays and that an increasing proportion of men are opting to undergo them. Cosmetic medical and surgical procedures are being sought not only by entertainers, politicians, and other public figures, but also by the upper classes of the general public who can afford hefty fees not covered by health insurance or Medicare.

According to the American Society for Aesthetic Plastic Surgery, the number of cosmetic procedures carried out in the U.S. increased 44% from 2003 to 2004. The top five surgical procedures in 2004 were liposuction, breast augmentation, eyelid surgery, rhinoplasty, and facelifts.

Several social factors (abetted by human vanity and the universal appeal of youth and beauty) account for the rising popularity of facial cosmetic surgery. Health insurers now generally decline to pay the higher fees charged by dermatologists for the diagnosis and treatment of acne, atopic dermatitis, warts, and

other skin disorders that are within the competence of primary care physicians. This has driven many dermatologists to branch out into the collateral field of aesthetic surgery, performing electrolysis of superfluous facial hair, cryoablation or laser treatment of blemishes, and minor plastic procedures.

This encroachment of dermatologists on the turf of board-certified plastic surgeons has led to a contest to see which specialty can afford more advertising on billboards and TV and in the Yellow Pages. One such practice in California spends \$35,000 a month on "promotion." Obviously the old adage is no less true in purveying medical services than in selling groceries: "Advertising doesn't cost; it pays."

Some of the increase in the demand for facial cosmetic surgery no doubt stems from media exposure on television shows such as "Extreme Makeover." These programs exploit the sensational contrast between "before" and "after" images, but don't inform viewers that the impressiveness of the results has been enhanced by artistically planned and applied makeup and hair-styling.

And by compressing each patient's surgical odyssey into less than one hour of air time, they downplay the realities. These procedures must be carried out in many separate stages over a period of months and typically involve chiselling and grafting of facial bones and cartilages, elaborate dental work (frequently prosthetic replacement of most or all natural teeth), implantation of synthetic materials, intensive physical and speech therapy, protracted seclusion from social contacts, prolonged uncertainty about the results, and lots of pain. It need scarcely be added that patients whose makeovers yield unsatisfactory outcomes because of severed facial nerves, hypertrophic or pigmented scars, dimpling, contractures, persistent swelling, or maladroit or asymmetrical recontouring will never appear on your TV screen.

**T**his article surveys newer and less drastic chemical and surgical procedures for facial rejuvenation. Although some of these procedures are also effective against abnormal pigmentation, keratoses, dilated blood vessels, benign and malignant neoplasms, and scars due to trauma, acne, or chickenpox, the main focus here is on the diagnosis and treatment of purely mechanical effects of aging—sagging, wrinkling, and furrowing.

This breakdown of the topic is somewhat artificial, because these three types of skin change can occur together in an infinite variety of combinations, and their causes overlap and interact. Temporal changes such as the gradual atrophy of

subcutaneous fat, chemical degradation or loss of collagen and elastin fibers from the dermis, and loss of water from the epidermis are some of the more prevalent and predictable causes of skin deterioration due to aging.

But other factors, particularly heredity, ultraviolet radiation from the sun and other sources, and exposure to environmental toxins such as cigarette smoke, also play a major part in much of the skin change attributed to aging. Sagging and drooping reflect the influence of gravity on tissues that have lost their elasticity and tone. Obesity (superfluous subcutaneous fat) accentuates sagging and remodeling of contours. Facial furrows or creases result from repetitive or habitual contraction of the muscles of facial expression.

**Sagging** or ptosis refers to a gradual downward displacement of lax tissues by sustained exposure to the force of gravity. Common sites of ptosis in the face are the forehead, eyelids, and jowls.

Sagging of the forehead allows the eyebrows to droop over the eyelids, creating a groggy or morose appearance. Ptosis of the upper eyelids, even when not augmented by sagging of the brows, can be so severe as to block the line of vision. Drooping lower eyelids can become everted, exposing the conjunctiva (ectropion) and permitting spillage of normal tears (epiphora). Atrophy of subcutaneous tissue around and beneath the eyes can give them a hollow look or create a prominent groove beside the nose (tear-trough deformity) or dark crescents or “bags” below the eyes.

The word *jowl* can mean either the normal jaw and cheek area or a fleshy prominence of the lower cheek. Jowls in the latter sense are bilateral folds of sagging skin that accentuate the normal commissural creases at the sides of the mouth, particularly in persons with excess subcutaneous fat. These vertical lines extending downward from the corners of the mouth to the sides of the chin are sometimes called marionette lines because they correspond to the edges of the movable jaw in a puppet or ventriloquist’s dummy.

Other examples of facial sagging are the double chin, the witch’s chin, pendulous earlobes, and a fold of lax skin at the front of the neck resembling the dewlap of an ox or the wattle of a fowl.

**Wrinkles** (rhytides) are fine lines, actually superficial creases or furrows in the epidermis, that result from changes in the microscopic structure and biochemistry of the dermis and from diminished hydration of the epidermis. Depending on their location, wrinkles may form elaborate networks of criss-crossing lines. Stretching the skin manually or altering skin tension by changing facial expression may abolish wrinkles temporarily. Although associated with aging, wrinkling is chiefly caused by sun damage and exposure to environmental toxins such as tobacco smoke.

Facial wrinkling is apt to be particularly prominent around the eyes and mouth. The Fitzpatrick classification measures the degree of wrinkling in those two areas:

Class I: Fine wrinkles.

Class II: Fine to moderately deep wrinkles and a moderate number of lines.

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*Influenced by popular demand, plastic surgeons . . . adapted techniques and materials that had originally been developed to revise disfiguring scars, replace missing noses, and rebuild shattered jaws in order to reduce, augment, or remodel normal features, particularly facial ones, that failed to match patients’ ideal self-images. Thus was the specialty of cosmetic and aesthetic surgery born.*

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Class III: Fine to deep wrinkles, numerous lines, and possibly redundant folds.

**Furrows** or grooves are skin creases that are deeper than wrinkles and that are less readily abolished by changes in skin tension. In general, furrows result from decades of repetitive or habitual stresses and strains placed on the skin by underlying muscles, particularly the muscles of facial expression. In early life, furrows come and go with changes in muscle contraction and tone. With the passage of time and loss of elasticity in the dermis, furrows become static or fixed.

The following are the more familiar types of facial furrows:

*Crow’s feet* (furrows radiating laterally from the outer corners of the eyes) are due to smiling and other activities that cause contraction of the orbicularis oculi and other eyelid muscles.

*Worry lines* (parallel horizontal furrows, wavy but bilaterally symmetrical, between the hairline and the eyebrows) result from prolonged or repetitive contraction of the frontalis muscle. Tightening of this muscle is a typical response to emotional stress and a key element in the genesis of muscle tension headache. The normal function of the frontalis muscle is to elevate the eyebrows and, to a lesser extent, the upper eyelids. This action may become increasingly habitual for persons with sagging brows and lids.

*Frown lines* (short vertical furrows between the eyebrows) are due to contraction of the corrugator supercillii muscles and the procerus muscle, actions that often accompany anger or intense mental concentration.

*Smile lines* (exaggerated nasolabial folds, the creases that run from the sides of the nose to the corners of the mouth).

*Whistle lines* or *smoker’s lines* (furrows radiating outward around the mouth) result from the puckering action of the orbicularis oris muscle.

The net effect of all this facial drooping, wrinkling, and creasing is to make the owner of the face look tired, distraught, forlorn, or just plain old. These changes in our appearance affect not only the way others perceive us and react to us but also (unless we’ve thrown away all our mirrors) the way we perceive and feel about ourselves. That has provided a powerful incentive for the medical profession to develop means of

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*Facial augmentation is a general term for any procedure in which a material is injected or implanted below the surface to fill in hollows, pits, creases, and other volume defects.*

---

correcting or improving the dermatologic ravages of aging, particularly on the face.

**R**esurfacing is a general term referring to techniques in which the superficial layers of the epidermis are peeled off by chemical or mechanical means. Various forms of resurfacing can satisfactorily reduce wrinkling, acne scarring, irregular pigmentation, and coarsening of the skin. Unless combined with other methods, resurfacing has no effect on sagging or on static furrows.

**Retinoids** are derivatives of vitamin A (retinol), whose effects include maintenance of normal epithelial function. Retinol and its derivatives have been widely used in the treatment of acne vulgaris and, more recently, for wrinkling of the face, neck, and hands. Retinoids used in dermatology are believed to exert their effects by modulating the proliferation and differentiation of epidermal cells, increasing the turnover rate of cornified squamous epithelium, and promoting the shedding of superficial cornified cells.

Vitamin A can be obtained without a prescription in both oral and topical forms, but its effectiveness in acne falls far short of that of its more powerful prescription derivatives such as topical tretinoin (Retin-A) and adapalene (Differin) and oral isotretinoin (Accutane). Besides being an effective treatment for mild to moderately severe acne, tretinoin has also been shown to reverse some of the changes due to the combined effects of aging and ultraviolet radiation: wrinkles, freckles, and solar keratoses.

Although generally well tolerated, tretinoin creams or gels typically cause mild drying, erythema, and peeling of treated areas, particularly at the start of therapy. They may also sensitize the skin to sunlight. Their principal advantages are that they can be applied by the patient, with adjustment of dosage as appropriate from day to day, and seldom cause enough visible effects to require absence from work or avoidance of social contacts.

One direct effect of aging on the skin is a delay in the shedding of superficial squamous epithelial cells. The gradual accumulation of these cells on surfaces not regularly exposed to friction, such as the face, can give the skin a dull, rough, dry, or dusty look. A **chemical peel** is a dermatologic procedure consisting of the application of one or more chemicals to facial skin in order to detach superficial cells. It may also be employed to treat wrinkling and other forms of aging and sun damage.

The expected result of a peel is a fresher-looking, smoother, more evenly pigmented skin surface. Depending on

the agent or agents used and the length of exposure, a variable number of layers of epidermal cells are destroyed and removed. Superficial peels can be performed by cosmeticians, nurses, or physicians' assistants and usually cause only mild erythema and stinging, with no need to spend a recovery period at home. But they may need to be repeated at intervals as short as one or two weeks in order to maintain a healthier appearance of the skin. More aggressive procedures, performed by dermatologists or plastic surgeons, are more painful and produce edema, erythema, and crusting that may last for more than a week. These deeper peels are repeated only at intervals of several months to one year.

Chemical peels tend to have cumulative benefits. With repeated applications at higher concentrations, even milder agents may gradually retexture the skin as dermal collagen and elastin regenerate. Continued treatments also reportedly help to stabilize oily or acne-prone skin and improve skin tone. Although fine wrinkles and some acne scars are less obvious after peeling, this technique has no effect on deep furrows.

**Glycolic acid** (alpha-hydroxyacetic acid) is a relatively mild peeling agent that, when used correctly, produces only slight stinging and erythema. The usual procedure is to cleanse the face thoroughly, apply a 20-70% solution for three minutes, then neutralize the acid chemically and flush it away with water. Lower strength solutions are used for initial treatments, and the strength is adjusted in proportion to the response. Glycolic acid is present at very low concentrations in some topical skin conditioners and moisturizers. Citric and lactic acids are other alpha-hydroxy acids that may be used as mild peeling agents.

For deeper peeling, a more corrosive agent such as **trichloroacetic acid** (TCA) in a concentration of 20-35% may be chosen. The effectiveness of this chemical in dissolving keratin (the chief protein of epidermal cells) is well known from its long use in treating warts and other keratoses. TCA peels are painful and for a few days the patient may look like a survivor from a nuclear blast. With healing there is usually an impressive improvement in skin texture, with reduction in wrinkles, blotchy pigmentation, freckling, and solar keratoses.

Extremely deep peels with powerful agents such as phenol (carbolic acid) are seldom performed nowadays because of the risk of systemic toxicity, scarring, and other cosmetically unacceptable results such as a waxy, masklike appearance of the skin.

Peeling protocols may include topical hydroquinone to lighten pigment spots, tretinoin to accelerate maturation and shedding of superficial cells, sunscreen to protect freshly treated skin from ultraviolet damage, and topical or systemic antivirals and antibiotics.

**Dermabrasion** is a mechanical rather than a chemical resurfacing technique that was developed about 100 years ago in Germany to treat facial scars due to acne. Nowadays it is also used to erase wrinkles, pigmented birthmarks, tattoos, and keloids and to treat rosacea, rhinophyma, and some skin neoplasms. In this procedure the surgeon grinds away and reshapes the skin surface by means of a selection of sanding cones, wire brushes, and fraises (spiked wheels) driven by a hand-held high-speed rotary power tool.

For treatment of small areas, local anesthesia combined with sedation may be adequate, but general anesthesia is routine when the entire face is to be treated. After the target area has been scrubbed with antibacterial soap, it may be chilled with ice packs or a freezing spray to provide a firmer surface and enhance anesthesia. Adjunctive treatment may include administration of tretinoin for several days before and after the abrasion procedure and a prophylactic antiviral such as acyclovir to prevent herpes simplex, a frequent complication.

Dermabrasion can often yield highly satisfactory and long-lasting improvement in the appearance of aging skin. However, the procedure itself results in a painful injury with intense erythema, swelling, oozing of blood and serum, and crusting. Complete healing may take several months. Possible complications are infection, scarring, and abnormal pigmentation of treated areas.

**Microdermabrasion** is an alternative method of removing surface skin cells mechanically without recourse to tools that might have come from a sculptor's studio or a cabinetmaker's shop. This technique, which employs a blast of fine, sterile grit such as aluminum oxide or ice crystals as the abrasive, takes only a few minutes and requires no anesthesia. Its effects are approximately those of a superficial chemical peel. It can effectively remove wrinkles and other fine surface irregularities, but 10 to 20 treatments may be needed before a satisfactory result is achieved.

**Laser resurfacing** is yet another method of removing the top layers of the epidermis so as to lessen or abolish wrinkles, acne scars, pigmented nevi, tattoos, and other superficial lesions. Performed with a YAG or CO<sub>2</sub> laser, this procedure allows highly precise surface contouring, as in the similar technique of corneal reshaping, and is particularly effective for wrinkles around the eyes and lips. Local or general anesthesia may be used. Laser resurfacing, like methods involving chemical corrosives or mechanical abrasives, results in some swelling, oozing, and crusting. Erythema and heightened sensitivity to sunlight may persist for several weeks. Undesirable irregularities of pigmentation occur in some patients, particularly those with darker skin.

**Thermage** (rhymes with *garage*; also called nonablative resurfacing, thermal resurfacing, or radiothermoplasty) uses radiofrequency energy to raise the temperature of the dermis. This tightens deteriorated collagen fibers and stimulates formation of new collagen during succeeding weeks and months, thus correcting superficial lines and wrinkles. The procedure has also produced improvement in some cases of moderate to severe acne, evidently by a different mechanism.

Areas to be treated are carefully mapped in advance and identified by a grid placed over the face at the time of treatment. After application of a topical anesthetic and a coupling fluid that serves as a conductive medium for RF energy, the treatment tip is brought into contact with the skin while a cooling spray bathes the site continuously to prevent burning of the skin surface. During the treatment session, which takes 1-2 hours, the energy input can be lowered if necessary to prevent the sensation of warmth from reaching the pain level.

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*. . . patients whose makeovers yield unsatisfactory outcomes because of severed facial nerves, hypertrophic or pigmented scars, dimpling, contractures, persistent swelling, or maladroitness or asymmetrical recontouring will never appear on your TV screen.*

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The procedure typically produces redness and swelling that persist for hours to days. As a general rule the eventual benefits of treatment are in proportion to the amount of initial redness and swelling. Thermal resurfacing yields the most satisfactory results in mild laxity, wrinkling, and creasing around the nose and mouth. Full results may take many months, and only about 25% of patients ever show clear-cut improvement. This technique carries a small risk of surface burns with blistering and scarring. Some patients develop dimpling due to fat atrophy.

**G**eorge Washington's face was so badly scarred by smallpox that, while sitting for the portrait by Gilbert Stuart that is reproduced on the one-dollar bill, he held masses of cotton in his mouth (in addition to the famous false teeth) to restore the normal contours of his cheeks. **Facial augmentation** is a general term for any procedure in which a material is injected or implanted below the surface to fill in hollows, pits, creases, and other volume defects.

Originally developed to correct severe scarring and deformity, facial augmentation has become a popular adjunct to aesthetic facial surgery, partly because most such procedures are minimally invasive and require little or no recovery time. Volume restoration is particularly effective in smoothing out crow's feet, whistle lines, acne pits, and other scars. It may also be used to fill out hollow cheeks or to impart fullness to the lips and chin.

The ideal implant material would be biocompatible, non-allergenic, chemically and physically stable, nonbiodegradable, and easily introduced by injection through a needle. Of the broad variety of substances and materials currently available for facial augmentation, none meets all those criteria and none is suitable for all applications.

**Facial fat grafting** is a variant of liposculpture in which superfluous fat cells are removed from the patient's own abdomen or thighs and injected into the subcutaneous tissues of the face to fill in surface defects or augment certain areas for aesthetic reasons. Under local anesthesia, subcutaneous fat is aspirated from the donor site through a small incision with a large-bore cannula. After extraction of blood and connective tissue fibers, the fat is injected under facial skin and the surface contours are remodeled by manipulation. The procedure usually causes short-lived edema and ecchymosis. Icepacks may be applied for the first 2-3 days.

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*The popularity in the U.S. of the non-surgical facelift, variously known as ThreadLift, FeatherLift, or “lunchtime facelift,” has recently exploded as a result of television exposure.*

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This is a true autologous free graft. That is, some of the reimplanted fat survives as living tissue in its new location. Unfortunately an unpredictable amount—usually about two-thirds—of the grafted fat is eventually resorbed. The procedure may therefore need to be repeated several times before adequate results are obtained. If more fat is injected than the local blood supply can sustain, atrophy of grafted material can lead to lumpiness. The great advantage of fat grafting is that allergic reactions and immunologic rejection cannot occur with the patient's own tissue.

**Collagen** (from Greek *kolla* ‘glue’) is a generic term for a group of fibrous extracellular proteins that bind, support, protect, and cushion other structures throughout the body while also providing a degree of flexibility and elasticity. Collagen is the principal component of connective tissue fibers in the dermis, tendons, ligaments, tendon and muscle sheaths, bones, and other tissues.

Degradation and disappearance of collagen are major causes of dermal atrophy associated with both aging and sun exposure. Injections of collagen are used not only to fill in sagging, hollow areas of the face but also to smooth out wrinkles, creases, and depressed scars. Collagen used for this purpose may be obtained from bovine or porcine skin or from cultures of human skin cells. It can also be obtained by culturing the patient's own tissues, including fibroblasts, the cells that make collagen.

A saline suspension of purified collagen mixed with local anesthetic is injected into the dermis with a fine-gauge needle and the implanted material is distributed as needed by massage. The procedure is well-tolerated and necessary aftercare is minimal. Because of the substantial risk of allergic reaction, implantation of nonhuman collagen must be preceded by skin-testing. Implanted collagen is gradually degraded and absorbed. The procedure may therefore need to be repeated at intervals of 6-24 months. CosmoDerm, CosmoPlast, Zyderm, and Zyplast are commercially available formulations of collagen used in facial augmentation.

Another component of connective tissue that can be injected for facial augmentation is **hyaluronic acid**. This high molecular weight polysaccharide with a viscous, jelly-like consistency is a normal constituent of joint fluid, the vitreous humor, cartilage, the dermis, and the umbilical cord. In the dermis it serves as a cushioning and lubricating agent, a means of maintaining normal skin hydration, and a transport medium for nutrients from the circulation to skin cells.

Aging and ultraviolet exposure lead to gradual depletion of hyaluronic acid in the dermis. Preparations of natural or synthetic hyaluronic acid can be used to elevate skin depressions

and improve or abolish wrinkling and creasing in all areas of the face. Under local anesthesia, the filler material is placed in the dermis either by a series of small injections or by retrograde deposition, that is, by continuous injection from a long needle as it is gradually withdrawn after having been threaded through the treatment area.

Local redness and swelling resulting from the treatment last only a day or two. Allergy is rare and skin testing is not considered necessary. More than one treatment session may be necessary to achieve adequate filling of defects. Because injected hyaluronic acid is absorbed fairly rapidly, cosmetic improvements persist for only 6-9 months. Hylaform, Perlane, and Restylane are brands of hyaluronic acid used as facial fillers.

Unlike fat, collagen, and hyaluronic acid, some injectable or implantable facial fillers are entirely foreign to human body chemistry. **Polymethylmethacrylate (PMMA)** is a synthetic resin, familiar to most of us as Plexi-Glas, that is also used to make hard contact lenses and to repair bone and tissue defects. For facial augmentation it is injected in the form of microscopic beads (microspheres) suspended in collagen, hyaluronic acid, or another suitable vehicle. The injected material is redistributed by manipulation until wrinkles, creases, scars, and other defects are satisfactorily filled in.

The procedure is well tolerated and local inflammation subsides quickly. Although the suspending medium is eventually absorbed, the synthetic resin remains in position. As it gradually becomes encapsulated by dermal connective tissue, it forms a firm, permanent implant. Allergy to the resin is rare, but skin testing is necessary if the resin is suspended in nonhuman collagen. Artecoll, Arteplast, and Metacrill are cosmetic formulation of PMMA microspheres suspended in various media.

**Polyacrylamides** are a class of synthetic polymers with numerous biomedical applications. Because they are chemically and biologically inert and nonallergenic, these materials are used in the manufacture of cosmetics and skin care products, soft contact lenses, and a wide variety of surgical implants, as well as in instruments and products for clinical laboratory procedures.

Hydrophilic polyacrylamide gel (HPG) is an aqueous suspension of 2.5 to 5% polyacrylamide that is used as a filling agent for facial lines, creases, scars, and other volume deficits. Injected into subcutaneous tissue by a retrograde technique, the suspension is molded to the desired shape by massage. The water is quickly absorbed, leaving the suspended polyacrylamide behind as a permanent filler that, like PMMA, eventually becomes encapsulated by connective tissue. Unlike PMMA, injected polyacrylamide remains soft and pliable. For that reason its position may gradually shift, with loss of earlier cosmetic benefits. Rarely, polyacrylamide causes local granuloma formation.

The term **implant** refers to a solid object (that is, something with a fixed three-dimensional shape) that is placed surgically within living tissue to fill a defect, correct a deformity, or otherwise improve the texture, rigidity, shape, or function of a part. Various nontoxic and nonallergenic materials have

found broad application in the manufacture of implantable prostheses for the surgical specialties.

Implants are used for facial augmentation when injectable materials cannot provide sufficient bulk, firmness, or permanency. The same general procedure is used for all solid implants, regardless of chemical composition. After preparation of the skin surface and administration of local anesthetic, the surgeon makes a small incision and, by blunt dissection, creates a pouch or tunnel for the reception of the implant. The sterile implant material, carved or trimmed to the desired shape, is then positioned and secured in the pouch and the skin incision is closed.

Fine points of technique vary with the part of the face involved, the product used, and the type of augmentation required. Postoperatively some transitory local inflammation is usual. Severe adverse effects such as infection, foreign body reaction with excessive fibrosis, and shifting or extrusion of the implant are rare. Implant materials that have a porous or mesh-like microstructure allow for the ingrowth of blood vessels and connective tissue fibers. This stabilizes the implant mechanically and enhances its integration into surrounding tissues. Implants of synthetic materials are intended to be permanent. They can, however, be surgically repositioned if necessary, or removed in the event of infection or other untoward consequences.

The physical and chemical properties of **polytetrafluoroethylene** (PTFE), more familiarly known under its trade name Teflon, make it an ideal material for countless industrial and biomedical applications, including implants in orthopedic and cardiovascular surgery. Expanded polytetrafluoroethylene (ePTFE, Gore-Tex) consists of fibrils of this polymer that have been woven into a meshlike fabric. Strong and waterproof, it is used in the manufacture of outdoor garments and surgical gowns and drapes as well as vascular and orthopedic grafts and implants for facial augmentation. The porous structure of ePTFE allows ingrowth of blood vessels and connective tissue fibers, but only to a limited extent. Implants of this material must be placed deep in the subcutaneous tissue layer to avoid unduly severe inflammatory reactions.

High-density **polyethylene** (HDPE) is another synthetic polymer used in fashioning implants for facial augmentation. As the brand name Medpor suggests, the dimensions of its pores makes it highly suitable for vascular and connective tissue ingrowth. Prolene and Marlex are mesh forms of HDPE.

**Hydroxyapatite**, an inorganic compound of calcium and phosphorus, is the chief mineral constituent of bones and teeth. Implants of hydroxyapatite derived from sea coral have been found suitable for plastic surgical procedures including facial augmentation. This material is sufficiently porous to allow ingrowth from surrounding tissue. Eventually, implanted hydroxyapatite is partially absorbed and replaced by natural bone.

**Solid silicone** (dimethylsiloxane) is a durable, flexible synthetic polymer with a long history of satisfactory use in heart valve replacements, joint prostheses, and facial augmentation. Unlike the liquid silicone used in breast implants, solid silicone implants do not leach or diffuse into surrounding tissues, and

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*. . . nonsurgical treatments such as botulinum toxin injections and minimally invasive procedures such as chemical peels and injections of fillers have become increasingly popular because they involve much less pain, healing time, and expense.*

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cause relatively little foreign body reaction. Silicone implants for facial augmentation are manufactured in varying degrees of hardness. Because they are not porous, they do not become integrated into surrounding tissues.

According to the American Society for Aesthetic Plastic Surgery, in 2004 the most popular nonsurgical cosmetic procedure was injection of **botulinum toxin**. More than 1.8 million injections were administered in the U.S., an increase of 25% from 2003.

Botulinum toxin is often described as the most potent poison, or the most toxic substance, known to science. One gram of purified toxin (roughly the weight of a paperclip) could kill about a million people; six kilograms (roughly the weight of a bowling ball) could kill every man, woman, and child on this planet. What is something that deadly doing in the armamentarium of the dermatologist and cosmetic surgeon?

*Clostridium botulinum* is a spore-forming anaerobic bacterium that causes a potentially lethal type of food poisoning called botulism. This organism is particularly likely to flourish in canned vegetables, smoked or potted meats, dried or vacuum-packed fish, and sausage. Like closely related species that cause tetanus, gas gangrene, and pseudomembranous enterocolitis, *Cl. botulinum* produces its effects by elaborating a toxin—actually a group of chemically similar neurotoxins. Proliferation of organisms within the patient does not occur except in infants (who may acquire infection from organisms present in honey) and in a non-food-related variant, wound botulism.

Botulinum toxins absorbed from the digestive tract and carried throughout the body in the circulation block neuromuscular conduction by binding to motor nerve terminals and inhibiting the release of acetylcholine. The classical presenting symptoms of botulism, occurring 12-36 hours after ingestion of toxin, are six D's: diplopia (double vision due to paralysis of extraocular muscles), dilatation of the pupils, drooping of the eyelids, dysphonia (hoarseness due to vocal cord paralysis), dry mouth, and dysphagia (difficulty swallowing). Progressive weakness and paralysis of skeletal muscle, including respiratory muscles, may follow. Some patients experience nausea and vomiting. Treatment is by administration of antitoxin, endotracheal intubation and mechanical ventilation, parenteral nutrition, and other supportive measures. With timely diagnosis and treatment the prognosis is excellent.

Botulinum toxin was first used therapeutically in 1980 to treat strabismus. A minute quantity of purified toxin (type A)

injected into an overactive extraocular muscle was found to paralyze the muscle, permitting coordination of gaze and binocular vision without diplopia. Use of the toxin was first approved by the U.S. Food and Drug Administration (FDA) in 1989 for strabismus and blepharospasm. This led to the observation that some middle-aged patients treated with injections of botulinum toxin for these disorders experienced a smoothing of glabellar frown lines, thus appearing more cheerful, more relaxed, and . . . younger!

Placebo-controlled studies subsequently showed that injection of toxin directly into the right and left corrugator supercillii muscles and the midline procerus muscle usually produces a striking improvement in moderate to severe glabellar furrows within one week. Because the chemical denervation of muscle by toxin is temporary, treatments must be repeated at intervals of a few months in order to maintain the response.

On April 15, 2002, the FDA announced its approval of a cosmetic formulation of botulinum toxin for the temporary improvement of glabellar frown lines. Botulinum toxin for this indication is marketed as Botox Cosmetic by Allergan. Each vial contains 100 units of purified, vacuum-dried type A toxin. After reconstitution with sterile physiologic sodium chloride solution, each 0.1 mL (the recommended volume of a single injection) contains 4 U of toxin. The standard protocol for treatment of glabellar furrows calls for one injection into the procerus muscle and two injections into each corrugator supercillii muscle for a total dose per session of 20 U. Injections are made with a 30-gauge needle.

Treatment may be followed by local pain, tenderness, and ecchymosis lasting 2-3 days or longer. Some patients experience ptosis of one or both eyelids if toxin reaches one or both levator palpebrae superioris muscles. The risk of this can be reduced by careful injection technique. Like the therapeutic effect of the injection, lid ptosis resolves with time. Systemic toxicity has not been reported. Botulinum toxin is contraindicated during pregnancy and lactation, in persons with certain neuromuscular disorders, and in those who have had adverse reactions to previous doses. Diminishing response has been observed in some patients who have formed a neutralizing antibody to the toxin. The likelihood of antibody formation is greater when high doses are administered at short intervals.

Repeated injections of toxin may eventually induce atrophy of treated muscles, with enhanced and more lasting effects. However, some observers believe that chemically denervated muscles can develop new acetylcholine receptors and that treated patients can develop new ways of frowning and hence new furrows.

In view of its mechanism of action, it isn't surprising that botulinum toxin is ineffective against static furrows and wrinkles caused by sun damage or dermal atrophy. That hasn't prevented its extensive use for such off-label indications as worry lines, crow's feet, sagging cheeks and jowls, and redundant neck folds.

**T**he phrase *plastic surgery* has nothing to do with the numerous synthetic materials, usually lumped together as "plastics," that virtually redefined human culture during the 20th century by extensively replacing wood, metal, cloth, rubber, and other natural products. These substances are called plastic because they can be formed, molded, or shaped (Greek *plastikos*). Just as sculpture is called a plastic art, surgery whose purpose is to model or remodel parts of the human body is called plastic surgery.

The origins of this branch of surgery are buried in remote antiquity. Reconstruction after facial injuries was practiced as early as 2000 BC. The Indian surgeon Susruta, who is believed to have lived around 800 BC, performed rhinoplasty and sliding, rotational, and pedicle grafts. Techniques for cleft palate repair were developed long before the era of surgical anesthesia and asepsis.

Throughout human history, a principal impetus for progress in plastic and reconstructive surgery has been war. As increasingly powerful and destructive weapons have been developed, military surgeons have had to deal with increasingly extensive and mutilating battle wounds. Thanks to advances in emergency medicine, victims of severe multiple trauma who once would have died on the battlefield now survive and return to civilian life with deformities and disabilities of staggering proportions.

Modern plastic surgery came into its own as it struggled to deal with extensive facial and head injuries, burns, and loss of limbs in the aftermath of World War I. Pioneer work in this field on both sides of the Atlantic achieved results that seemed little short of miraculous. The public imagination, helped along by journalists and writers of sensational fiction, translated these biotechnical advances into a whole new form of supersurgery that could alter the shape of the human face at will, changing the identity of the subject or, more fantastically still, duplicating the face of someone else (see box).

### Suggestions for Collateral Reading

- Carr, John Dickson: *It Walks by Night*
- Freeman, R. Austin: *For the Defense: Dr. Thorndyke*
- Goodis, David: *Shoot the Piano Player* (source of the Bogart-Bacall film *Dark Passage*)
- Kesselring, Joseph: *Arsenic and Old Lace* (play and Cary Grant-Peter Lorre film version)
- Leroux, Gaston: *Chéri-Bibi* (and its sequels)
- Oppenheim, E. Phillips: *The Great Impersonation* (filmed under the same title)

Influenced by popular demand, plastic surgeons quickly adapted techniques and materials that had originally been developed to revise disfiguring scars, replace missing noses, and rebuild shattered jaws in order to reduce, augment, or remodel normal features, particularly facial ones, that failed to match patients' ideal self-images. Thus was the specialty of cosmetic and aesthetic surgery born. The field quickly advanced from rhinoplasties and chin augmentations to facelifts, breast aug-

mentations and reductions, liposuction, and body sculpturing. Many of the subsequent developments in the field of plastic surgery—notably silicone-filled breast implants—were driven by purely aesthetic considerations.

Mitigating or reversing the signs of aging in the face and neck has always constituted a major part of cosmetic surgery. For several decades the facelift or rhytidectomy was the cosmetic surgeon's bread and butter. (Although *rhytidectomy* translates as 'cutting out wrinkles', the procedure actually consists in cutting out fat and tightening facial muscles and overlying redundant skin.) Fees for a full facelift, which are not covered by health insurance or Medicare, can easily reach \$20,000 when hospital, operating room, and anesthesiologists' fees are factored in.

As mentioned earlier, nonsurgical treatments such as botulinum toxin injections and minimally invasive procedures such as chemical peels and injections of fillers have become increasingly popular because they involve much less pain, healing time, and expense. For the same reasons, the aging public has enthusiastically embraced a type of minimally invasive facelift procedure devised within the past decade.

For many years plastic surgeons have tried to perform brow, cheek, jowl, and neck lifts without incisions by suspending sagging tissues with nonabsorbable suture materials threaded through various tissue layers of the face. Results have been generally unsatisfactory because of technical difficulties of suture placement and the gradual loss of support as suture materials cut through tissues.

In the early 1990s, the U.S. plastic surgeon Gregory Ruff invented a nonsurgical facial rejuvenation procedure that involves the subcutaneous placement of lengths of monofilament polypropylene suture material in which evenly spaced barbs or cogs have been fashioned to catch and hold tissue. This material, developed by Quill Medical as Contour Thread, received FDA approval in 2004. A similar product, invented by Marlen and Georges Sulamanidze of Russia and manufactured in this country by K.M.I. (Kolster Methods, Inc.), is known by the trademark Aptos (based on the coined term *aptosis*, meaning 'without drooping') and by the colloquialism "Russian threads." As of this writing, Aptos threads have not been approved by the FDA.

The popularity in the U.S. of the nonsurgical facelift, variously known as ThreadLift, FeatherLift, or "lunchtime facelift," has recently exploded as a result of television exposure.

Like many revolutionary inventions, this one is the essence of simplicity. The barbs or spurs on each half of a strand point toward the center. A strand measuring 5-18 cm in length is inserted by means of a large-bore hollow needle that is carefully positioned in the subcutaneous fat layer and then withdrawn, leaving each end of the strand protruding from the skin. With gradual tightening of the strand combined with surface manipulation, the barbs engage the tissues, lifting the sagging brow, cheek, jowl, or neck until the desired correction is obtained. Because the procedure normally requires only local anesthesia, the patient can provide immediate feedback to the surgeon as to the degree of tightening required.

Once a strand has been satisfactorily positioned, each end is trimmed flush with the skin surface. As many as 20 strands may be inserted in parallel or crisscross patterns at one session. The expected swelling and ecchymosis usually last only 1-3 days, and most patients can return to work within that period. Complications such as infection and scarring are rare. Removal of threads, if needed, is relatively simple.

Within a few weeks, superfluous skin over treated areas tightens. Later, collagen deposition around threads tends to smooth out surface contours. Maximal improvement may take several months. Because the thread lift procedure cannot match the results of a surgical facelift, it is most suitable for middle-aged persons who are showing early signs of aging. Additional threads can be added later if needed. For optimum benefit it may need to be combined with other surgical or nonsurgical techniques. Depending on the number of threads placed, the cost of the procedure varies from \$2000 to \$8000.

**T**he adage that prevention is far superior to cure applies to skin care as well as to other facets of physical health and well-being. Facial rejuvenation procedures, no matter how ingenious and successful, can't really turn back the clock or fully reverse the effects of aging. More to the point, many of the changes that occur in facial skin with the passage of the years are due not so much to aging as to ultraviolet exposure (including artificial tanning) and cigarette smoking.

To stave off that first visit to the aesthetic surgeon, use a good sun blocker (SPF 30 or higher), don't smoke, avoid second-hand smoke, and apply moisturizers to improve the texture and water-holding capacity of your skin. *Gravitas* is Latin for 'weight'. One way to limit the effects of gravity on lax facial tissues would be to spend half your waking hours hanging upside-down. A more practicable way is to maintain a healthful weight.

Please don't stop smiling in order to avoid developing crow's feet. Just rename them "wisdom lines."

### Web Sites with Illustrations of Cosmetic Surgery

[http://www.amazingfaces.com/contour\\_thread\\_lift.html](http://www.amazingfaces.com/contour_thread_lift.html)

<http://www.prolenium.com/aesthetic001.html>

<http://store.nutecint.com/index.asp?PageAction=VIEWPROD&ProdID=116>

<http://nutecint.com/index.asp?PageAction=VIEWPROD&ProdID=4>

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## What's New in Medicine

**Activskin**—support pantyhose for men, euphemistically called performance wear. Soldiers in bug-infested parts of the world are using Activskin to protect themselves from insect bites. It reportedly also prevents chafing under the uniform and provides thermal insulation.

**Advexin** (p53 adenoviral gene)—a proprietary orphan drug used in the treatment of head and neck cancer.

**Apogee vaginal vault system**—a system for the repair of pelvic floor defects. See *Perigee system*.

**Aptima Combo 2 and Aptima CT**—assays for the detection of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* from the widest variety of sample types: clinician-collected endocervical, vaginal and urethral swab specimens; patient-collected vaginal swab specimens; and female and male urine specimens.

**Architect CTSTAT Myoglobin**—a myoglobin immunoassay to aid in the early diagnosis of acute myocardial infarction (AMI) and for the evaluation of thrombolytic therapy efficacy.

**Axcis**—a proprietary Holmium:YAG laser device from CardioGenesis, used for percutaneous myocardial revascularization.

**BF+ bone void filler**—a material made of resorbable calcium phosphate that provides a porous scaffold for bone formation. Available in a variety of shapes and sizes, it is indicated for filling bone voids or defects of the skeletal system (such as the extremities, spine, and pelvis) that are not intrinsic to its stability.

**bladder blade**—a protective surgical device used to isolate the bladder and protect it from injury during surgery in that region.

**Browlift Bone Bridge suture fixation system**.

**burrito-type dressing**—a descriptive term for a wound dressing. May be used following reconstructive procedures. See also *pillow burrito*.

**Cerasorb, Cerasorb M**—a resorbable synthetic bone void filler that promotes bone remodeling over time.

**Clolar** (clofarabine)—a drug for the treatment of children with refractory or relapsed acute lymphoblastic leukemia.

**columnization of contrast medium**—an abnormal finding on x-ray. For example, the entire ureter is not usually visualized on a single film except when an obstruction is present, such as from a stone. In that case the contrast appears lined up, as in a column. Usage: “Columnization of contrast was noted in the left ureter on intravenous pyelogram.”

**DNA histogram**—in which individual cell nuclei are visualized in the context of their relationship and position. It can reveal tumor types and patterns that may be useful in cancer diagnosis and treatment.

**DPN** (diabetic peripheral neuropathy).

**drip test and suction test**—used during laparoscopic procedures. In lieu of absorbent sponges or packs to absorb or remove blood from the surgical field, the laparoscopic surgeon depends on a flow of heparinized saline. Introduced into the surgical field, this flushes away blood and prevents clotting in nooks and crannies and on instruments. The saline is continuously removed from the site by the suction apparatus. Although the saline infusion is commonly referred to as a “drip,” the equipment involved is much more sophisticated than an IV drip. The saline is heated and delivered under pressure (hence more of a squirt), and the flow may

be pulsed to dislodge clots. The “drip” equipment as well as the suction apparatus must be checked for proper function before surgery.

**DTG** (diffuse toxic goiter).

**EasySpine pedicle screw and rod system**—a spinal fusion system featuring a flattened rod for flat-on-flat fixation with a pedicle screw, thereby increasing mechanical reliability. The final tightening torque requirements are 30% to 50% less than that required by other systems, thus minimizing the stress imposed on the overall construct and the spine. The rod ends feature 2-mm safety stops and are completely contained within the screw head to reduce the incidence of facet joint impingement. The pedicle screw also features an integrated multi-axial swivel joint that allows 20° angulation in all directions (40° total) while maintaining mechanical resistance. Transverse connectors can be used for compression or distraction, and lateral connectors with multi-axial connections similar to that of the screw heads provide additional flexibility.

**Elevest procedure**—a new minimally interventional technique for uterine prolapse repair. The technique strengthens the uterosacral ligaments to support the uterus in the pelvis, and shortens the round ligaments to restore the uterus to its correct anatomic position. The procedure does not require meshes or other implantable devices and applies conventional laparoscopic technique to uterine prolapse repair. Both the uterosacral and round ligaments are invested with permanent suture material. The ligaments are then shortened and secured in the proper position with extracorporeal suturing.

See other new, difficult, and hard-to-find medical terms in the 10th edition of *Vera Pyle's Current Medical Terminology* published by Health Professions Institute, 2005. Softcover, 937 pp., \$40 plus \$8 shipping. See order form.

# Update

**Enfant pediatric vision testing system**—a noninvasive, child-friendly medical device that tests for visual deficits using visual evoked potential technology. It records the brain's response to light and can detect vision problems such as amblyopia early in a child's life when these conditions are correctable. It reportedly has 97% sensitivity in detecting vision deficits in children as young as 6 months of age.

**ER/PR** (estrogen receptor/progesterone receptor).

**farnesoid X receptor (FXR) agonist**—an agent that may provide hepatoprotection in conditions of cholestasis by increasing the capacity for bile excretion from the hepatocyte and by decreasing bile acid biosynthesis.

**feline esophagus**—multiple thin transverse folds seen on esophagram; may be secondary to scleroderma, eosinophilic esophagitis, or gastroesophageal reflux.

**Festalan** (pancrelipase)—a medication that contains the enzymes needed to break down food into simpler substances that the intestines can absorb. Pancrelipase is used in people with pancreatic problems where the pancreas is producing little or no pancreatic enzymes.

**Fortitude Ti** and **Fortitude Vue**—titanium spinal fixation products.

**free tie**—a suture ligature that is not placed by means of a needle.

**GDx, GDx Access**—confocal scanning laser polarimeter for measuring and analyzing the retina

**GE 0.5 Tesla Double-Doughnut Magnet**—an MRI machine.

**Harmony PLIF instrument set**—a complement to Spinal Concepts' array of posterior lumbar interbody fusion implants and BacFix thoracolumbar system.

**healing by secondary intention**—referring to an incision or wound

that heals by itself rather than being closed surgically. For example, drain wounds are often left open and heal by secondary intention (by themselves) rather than being sutured closed (closed primarily).

**infracted**—to be broken off. Cf. *infractured*.

**infractured**—fractured inward, as opposed to outward. Not to be confused with “infracted,” which means to be broken off.

**Intelect laser system**—orthopedic/physical therapy device that provides topical heating for temporary increase in local blood circulation, temporary relief of minor muscle and joint aches, pain and stiffness, and muscle spasm.

**intensity-modulated radiation therapy (IMRT)**—an advanced mode of high-precision radiotherapy utilizing computer-controlled x-ray accelerators to deliver precise radiation doses to a malignant tumor or specific areas within the tumor. The radiation dose is designed to conform to the three-dimensional (3-D) shape of the tumor by modulating—or controlling—the intensity of the radiation beam to focus a higher radiation dose to the tumor while minimizing radiation exposure of surrounding normal tissues. Typically, combinations of several intensity-modulated fields coming from different beam directions produce a custom tailored radiation dose that maximizes tumor dose while also protecting adjacent normal tissues. Currently, IMRT is being used to treat cancers of the prostate, head and neck, breast, thyroid and lung, as well as in gynecologic, liver and brain tumors and lymphomas and sarcomas. IMRT is also beneficial for treating pediatric malignancies.

**Intercept Esophageal Internal MR Coil**.

**Intercept Vascular 0.030-inch Internal MR Coil**—a loopless or balloon-expandable transesophageal

probe to obtain high-resolution vascular images.

**international normalized ratio (INR)**—a system for reporting the results of blood coagulation (clotting) tests.

**ISRA** (intercompartmental suprapretinacular artery).

**Koby Isogard system**—instrumentation for the surgical treatment of chronic plantar fasciitis.

**Lyrica** (pregabalin capsules)—for the management of neuropathic pain associated with diabetic peripheral neuropathy and postherpetic neuralgia.

**Macugen** (pegaptanib sodium injection)—a drug for the treatment of neovascular (“wet”) age-related macular degeneration, the leading cause of severe vision loss in patients over the age of 50. It is the first in a new class of ophthalmic drugs known as vascular endothelial growth factor (VEGF) inhibitors.

**marshmallows**—marshmallow-shaped pieces of dressing material. They are used as padding, to anchor a dressing, or to keep a dressing from sticking to a wound.

**MELD** (Model for End-Stage Liver Disease).

**Michelangelo factor**—a reference to the skill of the ultrasound examiner (sonologists are artists). Detection is inversely proportional to patient's obesity and directly proportional to the examiner's (sonographer, sonologist, radiologist, urologist) ability.

**Model for End-Stage Liver Disease (MELD)** and **Pediatric End-Stage Liver Disease (PELD)**—numerical scales that are currently used for liver allocation. The MELD and PELD scores are based on a patient's risk of dying while waiting for a liver transplant, and are based on objective and verifiable medical data. The MELD score is used for adult liver patients and is based on bilirubin, INR, and creatinine.

Liver transplant candidates under the age of 18 are assigned a PELD score. The PELD score is based on bilirubin, INR, albumin, growth failure, and age when listed for transplant, factors which better predict mortality in children. These scores do not determine the likelihood of getting a transplant, which will be based upon organ availability and the distribution of MELD/PELD scores for patients in a local area or region.

**multi-slab and cine techniques for single breath-hold cardiac-synchronized angiography**—techniques designed to improve the yield of cardiac-synchronized gadolinium-enhanced magnetic resonance angiography of the coronary arteries. Conventional cardiac-synchronized MRA acquires data only during the rest period of the coronary arteries, or about one-fourth of each cardiac cycle. Multi-slab acquisition provides ECG-synchronized imaging of the entire heart, while cine acquisition yields a series of images with a narrower focus but representing various phases of the cardiac cycle. Both techniques permit acquisition of more data without an increase in the duration of breath-holding or a deterioration in image quality.

**myodesis**—procedure to affix or anchor muscle to bone; often performed during the amputation of a leg.

**Myosplint device**—see *ventricular geometry change*.

**Natural Selection PLIF wedge and cervical spacer.**

**Nex-Link spinal fixation system.**

**nuclear grade**—an assessment of malignant potential based on the size, shape, and staining characteristics of the nuclei of tumor cells. The higher the nuclear grade, the greater the likelihood of recurrence.

**OctaFix occipital fixation system**—a spinal fixation device for immediate stability within the occipital cervical fixation junction.

**1,2 intercompartmental supraciliary artery**—the 1,2 stands for the 1st and 2nd branches of the intercompartmental supraciliary artery (ISRA).

**pegaptanib sodium injection**—see *Macugen*.

**PELD** (Pediatric End-Stage Liver Disease).

**Perigee vaginal vault system**—a less invasive system for the surgical repair of pelvic floor defects in women, consisting of proprietary Perigee needles that enable surgeons to position a supportive mesh and correct the bladder's herniation through the vaginal wall. Cf. *Apogee vaginal vault system*.

**phantoms**—artificial human tissue models used to test the performance of medical imaging equipment by parroting the radiation attenuation and absorption properties of human tissue. They are also used to measure radiation dosage during therapy, for teaching purposes, to calibrate equipment, and for research. Phantoms are used to measure system resolution, focal spot size, contrast, exposure controls, image artifacts, etc. Phantoms are used to demonstrate to students (and technicians) the relationship between the physical object scanned and the final image.

**PHN** (postherpetic neuralgia).

**pillow burrito**—see *burrito-type dressing*.

**platelike atelectasis**—the collapse of the portion of the lung distal to an obstructed subsegmental bronchus, manifested as a linear opacity on a chest radiograph.

**PMC** (percutaneous myocardial channeling)—a minimally invasive procedure that stimulates blood flow in the heart to relieve pain from angina by creating channels in the inner

wall of the heart. These channels, it is thought, promote the growth of new blood vessels to improve blood supply to heart tissues in need of nourishment.

**PPH** (procedure for prolapse and hemorrhoids)—a minimally invasive surgical technique that uses a circular stapling device to lift hemorrhoidal tissue to its original position and trims a band of tissue above the pain line, reducing blood flow to internal hemorrhoids, causing them to shrink painlessly over several weeks following the procedure. This procedure is most appropriate for patients with third- or fourth-degree hemorrhoids and certain patients with second-degree hemorrhoids. “PPH procedure” is often dictated, even though it is redundant.

**Prialt** (ziconotide intrathecal infusion)—for patients who suffer from severe chronic pain that cannot be relieved by morphine and other potent pain drugs. It is administered through an implanted programmable pump that releases the drug into the fluid surrounding the spinal cord.

**Protege GPS nitinol self-expanding long stent**—cardiac device used during a minimally invasive procedure to open strictures and blockages.

**pseudomyotonia**—a rare neuromuscular disorder with onset usually in late childhood or early adulthood, characterized by intermittent or continuous widespread involuntary muscle contractions, fasciculation, hyporeflexia, muscle cramps and weakness, hyperhidrosis, tachycardia, and myokymia. Involvement of pharyngeal or laryngeal muscles may interfere with speech and breathing. The continuous motor activity persists during sleep and general anesthesia, distinguishing this condition from stiff-person syndrome. Cf. *stiff-person syndrome*.

**pulvinar**—(1) the expanded posterior extremity of the thalamus; (2) fibrofatty debris found in the hip joint in developmental dysplasia of the hip.

# Update

You will hear the term dictated in orthopedic surgery and also in radiology, as pulvinars can be seen on x-ray.

**SAFER**—saphenous vein graft angioplasty free of emboli randomized.

**SAPPHIRE**—study of angioplasty with protection in patients at high risk for endarterectomy.

**SARS** (severe acute respiratory syndrome)—a viral respiratory illness, first recognized as a global threat in March 2003, after first appearing in Southern China in November 2002. The illness usually begins with a high fever, sometimes associated with chills or other symptoms including headache, general feeling of discomfort, and body aches. Some people also experience mild respiratory symptoms at the outset. Diarrhea is seen in approximately 10-20% of patients. After two to seven days, SARS patients may develop a nonproductive cough that might be accompanied by or progress to a condition in which the oxygen levels in the blood are low (hypoxia). In 10-20% of cases, patients require mechanical ventilation. Most patients develop pneumonia. SARS is caused by a previously unrecognized coronavirus, called SARS-CoV (SARS-associated coronavirus). It is possible that other infectious agents might have a role in some cases of SARS. SARS appears to be spread by close person-to-person contact (droplet spread). In addition, it is possible that it might be spread more broadly through the air or by other ways that are not now known.

**Signa SP/i 0.5T MR imaging unit** (GE Medical Systems)—an MRI machine.

**slide-swing plasty**—see *symmastia*.

**SolarGen 2100s**—an advanced laser console for performing transmyocardial revascularization and percutaneous myocardial channeling procedures.

**Soutar flap**—a radial forearm free flap in intraoral reconstruction following surgery for oral cancer.

**suction test**—used during laparoscopic procedures. See *drip test*.

**supercharged TRAM flap**—used in breast reconstruction. When the blood supply provided by the intact vascular pedicle of the transplanted muscle is supplemented by microsurgical augmentation of arterial or venous supply (or both), it is said to be “supercharged.”

**stick tie**—a surgical ligature that is placed by means of a needle.

**symmastia**—medial confluence of the breasts. The condition, in which the breasts almost merge together in a weblike manner in the midline, can be congenital or the result of mammoplasty. Slang: uniboob. Several approaches to surgical correction include the following: (1) Elevating an inferiorly based triangular skin flap that is advanced superiorly in an inverted Y-V manner after the excess medial soft tissue is divided and sutured superiorly to the medial pectoralis fascia to create a brassiere-band sling effect; (2) a superiorly based medial flap containing both skin and soft tissue is elevated, the excess skin and soft tissue then excised, and the remaining flap tailored to fit into a V-shaped defect in the inferior incision to place the scar in a less viable place inferior to the sternum; (3) an approach consisting of the vertical division and superior rotation of the excess subcutaneous tissue flaps and the elevation of a superiorly based skin flap inserted into a V-shaped defect in the inferior incision; (4) a technique called a slide-swing plasty. This condition may also be called *symmastia*.

**ThyroTest**—a rapid assay for the detection of hypothyroidism. Results are available in 10 minutes from a specimen of whole blood.

**thyrotoxicosis factitia**—thyroid disease caused by the intake of excess

thyroid medication. Also called *thyrotoxicosis medicamentosa*.

**thyrotoxicosis medicamentosa**—thyroid disease caused by the intake of excess thyroid medication. Also called *thyrotoxicosis factitia*.

**Transfix sutureless sling fixation system**—a surgical treatment for stress urinary incontinence.

**TraXis Ti and TraXis Vue**—an alloy spacer used with a transforaminal (oblique) approach to restore height in the vertebral bodies of the thoracolumbar spine.

**Vectra Genisys laser system**—orthopedic/physical therapy device that provides topical heating for temporary increase in local blood circulation, temporary relief of minor muscle and joint aches, pain and stiffness, and muscle spasm.

**ventricular geometry change**—a new concept in the treatment of heart failure that reduces left ventricular (LV) wall stress and improves cardiac function by reducing effective LV radius. Device-based left ventricular geometry change is achieved by placement of three Myosplint devices to bisect the LV and to create two smaller LV chambers. The device is easily applied on a beating heart without complications related to the device or the procedure. LV wall stress is significantly decreased after tightening of the device.

**Vesseloops**—vascular surgical bands for occlusion or retraction of vessels including arteries, veins, nerves, and ureters. However, since this sounds exactly like “vessel loops,” the generic term should be transcribed unless the branded name is specified.

**vitreoretinopathy**—vitreoretinal membrane shrinkage or contraction of the eye.

**ziconotide intrathecal infusion**—see *Prialt*.