

Medical transcription

Medical transcription, also known as **MT**, is an allied health profession, which deals in the process of transcription, or converting voice-recorded reports as dictated by physicians or other healthcare professionals, into text format.

1 History

Medical records have been kept since humans began writing, as attested by ancient cave writings. Medical transcription as it is currently known has existed since the beginning of the 20th century, when standardization of medical data became critical to research.^{[1][2]} At that time, medical stenographers replaced physicians as the recorders of medical information, taking doctors' dictation in shorthand. With the creation of audio recording devices, it became possible for physicians and their transcriptionists to work asynchronously, thus beginning the profession of healthcare documentation as we currently know it.^[3]

Over the years, transcription equipment has changed from manual typewriters to electric typewriters to word processors to computers and from plastic disks and magnetic belts to cassettes and endless loops and digital recordings. Today, speech recognition (SR), also known as continuous speech recognition (CSR), is increasingly being used, with medical transcriptionists and or "editors" providing supplemental editorial services, although there are occasional instances where SR fully replaces the MT. Natural-language processing takes "automatic" transcription a step further, providing an interpretive function that speech recognition alone does not provide (although MTs do).

In the past, these medical reports consisted of very abbreviated handwritten notes that were added in the patient's file for interpretation by the primary physician responsible for the treatment. Ultimately, this mess of handwritten notes and typed reports were consolidated into a single patient file and physically stored along with thousands of other patient records in a wall of filing cabinets in the medical records department. Whenever the need arose to review the records of a specific patient, the patient's file would be retrieved from the filing cabinet and delivered to the requesting physician. To enhance this manual process, many medical record documents were produced in duplicate or triplicate by means of carbon copy.

In recent years, medical records have changed consid-

erably. Although many physicians and hospitals still maintain paper records, there is a drive for electronic records.^[4] Filing cabinets are giving way to desktop computers connected to powerful servers, where patient records are processed and archived digitally. This digital format allows for immediate remote access by any physician who is authorized to review the patient information. Reports are stored electronically and printed selectively as the need arises. Many MTs now utilize personal computers with electronic references and use the Internet not only for web resources but also as a working platform. Technology has gotten so sophisticated that MT services and MT departments work closely with programmers and information systems (IS) staff to stream in voice and accomplish seamless data transfers through network interfaces. In fact, many healthcare providers today are enjoying the benefits of handheld PCs or personal data assistants (PDAs) and are now utilizing software on them.

2 Overview

Medical transcription is part of the healthcare industry that renders and edits doctor dictated reports, procedures, and notes in an electronic format in order to create files representing the treatment history of patients. Health practitioners dictate what they have done after performing procedures on patients and MTs transcribe the oral dictation and/or edit reports that have gone through speech recognition software.^[5]

Pertinent up-to-date, confidential patient information is converted to a written text document by a medical transcriptionist (MT).^[6] This text may be printed and placed in the patient's record and/or retained only in its electronic format. Medical transcription can be performed by MTs who are employees in a hospital or who work at home as telecommuting employees for the hospital; by MTs working as telecommuting employees or independent contractors for an outsourced service that performs the work offsite under contract to a hospital, clinic, physician group or other healthcare provider; or by MTs working directly for the providers of service (doctors or their group practices) either onsite or telecommuting as employees or contractors. Hospital facilities often prefer electronic storage of medical records due to the sheer volume of hospital patients and the accompanying paperwork. The electronic storage in their database gives immediate access to subsequent departments or providers regarding the patient's care to date, notation of previous

or present medications, notification of **allergies**, and establishes a history on the patient to facilitate **healthcare** delivery regardless of geographical distance or location.

The term transcript or “report” as it is more commonly called, is used as the name of the document (electronic or physical hard copy) which results from the medical transcription process, normally in reference to the healthcare professional’s specific encounter with a patient on a specific date of service. This report is referred to by many as a “medical record”. Each specific transcribed record or report, with its own specific date of service, is then merged and becomes part of the larger patient record commonly known as the patient’s medical history. This record is often called the patient’s chart in a hospital setting.

Medical transcription encompasses the MT, performing document typing and formatting functions according to an established criterion or format, transcribing the spoken word of the patient’s care information into a written, easily readable form. MT requires correct spelling of all terms and words, (occasionally) correcting medical terminology or dictation errors. MTs also edit the transcribed documents, print or return the completed documents in a timely fashion. All transcription reports must comply with medico-legal concerns, policies and procedures, and laws under patient confidentiality.

In transcribing directly for a **doctor** or a group of **physicians**, there are specific formats and report types used, dependent on that doctor’s speciality of practice, although history and physical exams or consults are mainly utilized. In most of the off-hospital sites, independent medical practices perform consultations as a second opinion, pre-surgical exams, and as IMEs (Independent Medical Examinations) for **liability insurance** or **disability** claims. Some private practice family doctors choose not to utilize a medical transcriptionist, preferring to keep their patient’s records in a handwritten format, although this is not true of all family practitioners.

Currently, a growing number of medical providers send their dictation by digital voice files, utilizing a method of transcription called speech or voice recognition. Speech recognition is still a nascent technology that loses much in translation.^[7] For dictators to utilize the software, they must first train the program to recognize their spoken words. Dictation is read into the database and the program continuously “learns” the spoken words and phrases.^[8]

Poor speech habits and other problems such as heavy foreign accents and mumbling complicate the process for both the MT and the recognition software. An MT can “flag” such a report as unintelligible, but the recognition software will transcribe the unintelligible word(s) from the existing database of “learned” language. The result is often a “word salad” or missing text. Thresholds can be set to reject a bad report and return it for standard dictation, but these settings are arbitrary. Below a set per-

centage rate, the word salad passes for actual dictation. The MT simultaneously listens, reads and “edits” the correct version. Every word must be confirmed in this process. The downside of the technology is when the time spent in this process cancels out the benefits. The quality of recognition can range from excellent to poor, with whole words and sentences missing from the report. Not infrequently, negative contractions and the word “not” is dropped altogether. These flaws trigger concerns that the present technology could have adverse effects on patient care. Control over quality can also be reduced when providers choose a server-based program from a vendor **Application Service Provider (ASP)**.

Downward adjustments in MT pay rates for voice recognition are controversial. Understandably, a client will seek optimum savings to offset any net costs. Yet vendors that overstate the gains in productivity do harm to MTs paid by the line. Despite the new editing skills required of MTs, significant reductions in compensation for voice recognition have been reported. Reputable industry sources put the field average for increased productivity in the range of 30%–50%; yet this is still dependent on several other factors involved in the methodology. Metrics supplied by vendors that can be “used” in compensation decisions should be scientifically supported.

Operationally, speech recognition technology (SRT) is an interdependent, collaborative effort. It is a mistake to treat it as compatible with the same organizational paradigm as standard dictation, a largely “stand-alone” system. The new software supplants an MT’s former ability to realize immediate time-savings from programming tools such as macros and other word/format expanders. Requests for client/vendor format corrections delay those savings. If remote MTs cancel each other out with disparate style choices, they and the recognition engine may be trapped in a seesaw battle over control. Voice recognition managers should take care to ensure that the impositions on MT autonomy are not so onerous as to outweigh its benefits.

Medical transcription is still the primary mechanism for a physician to clearly communicate with other healthcare providers who access the patient record, to advise them on the state of the patient’s health and past/current treatment, and to assure continuity of care. More recently, following Federal and State Disability Act changes, a written report (IME) became a requirement for documentation of a medical bill or an application for Workers’ Compensation (or continuation thereof) insurance benefits based on requirements of Federal and State agencies.

3 As a profession

An individual who performs medical transcription is known as a *medical transcriptionist (MT)* or a *Medical Language Specialist (MLS)*. The equipment used is called



A typical medical transcriptionist or a medical language specialist

a *medical transcriber*, e.g., a cassette player with foot controls operated by the MT for report playback and transcription.

Education and training can be obtained through certificate or diploma programs, distance learning, and/or on-the-job training offered in some hospitals, although there are countries currently employing transcriptionists that require 18 months to 2 years of specialized MT training. Working in medical transcription leads to a mastery in medical terminology and editing, ability to listen and type simultaneously, utilization of playback controls on the transcriber (machine), and use of foot pedal to play and adjust dictations – all while maintaining a steady rhythm of execution. Medical transcription training normally includes coursework in medical terminology, anatomy, editing, grammar and punctuation, typing, medical record types and formats, and healthcare documentation.^[9]

While medical transcription does not mandate registration or certification, individual MTs may seek out registration/certification for personal or professional reasons. Obtaining a certificate from a medical transcription training program does not entitle an MT to use the title of Certified Medical Transcriptionist. A Certified Healthcare Documentation Specialist (CHDS) credential can be earned by passing a certification examination conducted solely by the Association for Healthcare Documentation Integrity (AHDI), formerly the American Association for Medical Transcription (AAMT), as the credentialing designation they created. AHDI also offers the credential of Registered Healthcare Documentation Spe-

cialist (RHDS). According to AHDI, RHDS is an entry-level credential while the CHDS is an advanced level. AHDI maintains a list of approved medical transcription schools.^[10] Generally, certified medical transcriptionists earn more than their non-certified counterparts.

There is a great degree of internal debate about which training program best prepares an MT for industry work.^[11] Yet, whether one has learned medical transcription from an online course,^[12] community college, high school night course, or on-the-job training in a doctor's office or hospital, a knowledgeable MT is highly valued. In lieu of these AHDI certification credentials, MTs who can consistently and accurately transcribe multiple document work-types and return reports within a reasonable turnaround-time (TAT) are sought after. TATs set by the service provider or agreed to by the transcriptionist should be reasonable but consistent with the need to return the document to the patient's record in a timely manner.

While most medical transcription agencies prefer candidates with a minimum of one year experience, formal instruction is not a requirement, and there is no mandatory test. Some hospitals require nothing more than a diploma for employment as a medical transcriptionist. The average pay range for an in-house MT in a hospital setting is \$8/hr.^[13]

On March 7, 2006, the MT occupation became an eligible U.S. Department of Labor Apprenticeship, a 2-year program focusing on acute care facility (hospital) work. In May 2004, a pilot program for Vermont residents was initiated, with 737 applicants for only 20 classroom pilot-program openings. The objective was to train the applicants as MTs in a shorter time period. (See Vermont HITECH for pilot program established by the Federal Government Health and Human Services Commission).

3.1 Curricular requirements, skills and abilities

Experience that is directly related to the duties and responsibilities specified, and dependent on the employer (working directly for a physician or in hospital facility).

- Knowledge of medical terminology.
- Above-average spelling, grammar, communication and memory skills.
- Ability to sort, check, count, and verify numbers with accuracy.
- Skill in the use and operation of basic office equipment/computer; eye/hand/foot coordination.
- Ability to follow verbal and written instructions.
- Records maintenance skills or ability.
- Above-average to excellent typing skills.

3.2 Basic MT knowledge, skills and abilities

- Sound Knowledge of basic to advanced medical terminology is a must.
- Sound Knowledge of anatomy and physiology.
- Sound Knowledge of disease processes.
- Sound Knowledge of medical style and grammar.
- Effective communication skills.
- Above-average memory skills.
- Ability to sort, check, count, and verify numbers with accuracy.
- Demonstrated skill in the use and operation of basic office equipment/computer.
- Ability to follow verbal and written instructions.
- Records maintenance skills or ability.
- Above-average typing skills.
- Knowledge and experience transcribing (from training or real report work) in the Basic Four work types: History and Physical Exam, Consultation, Operative Report, and Discharge Summary.
- Knowledge of and proper application of grammar.
- Knowledge of and use of correct punctuation and capitalization rules.
- Demonstrated MT proficiency in multiple report types and multiple "specialties".

3.3 Duties and responsibilities

- Accurately transcribes the patient-identifying information such as name and Medical Record or Social Security Number.
- Transcribes accurately, utilizing correct punctuation, grammar and spelling, and edits for inconsistencies.
- Maintains/consults references for medical procedures and terminology.
- Keeps a transcription log.
- In some countries, MTs may sort, copy, prepare, assemble, and file records and charts (though in the United States (US) the filing of charts and records are most often assigned to Medical Records Techs in Hospitals or Secretaries in Doctor offices).
- Distributes transcribed reports and collects dictation tapes.

- Follows up on physicians' missing and/or late dictation, returns printed or electronic report in a timely fashion (in US Hospital, MT Supervisor performs).
- Performs quality assurance check.
- May maintain disk and disk backup system (in US Hospital, MT Supervisor performs).
- May order supplies and report equipment operational problems (In US, this task is most often done by Unit Secretaries, Office Secretaries, or Tech Support personnel).
- May collect, tabulate, and generate reports on statistical data, as appropriate (in US, generally performed by MT Supervisor).

4 The medical transcription process

When the patient visits a doctor, the latter spends time with the former discussing his medical problems, including history and/or problems. The doctor performs a physical examination and may request various laboratory or diagnostic studies; will make a diagnosis or differential diagnoses, then decides on a plan of treatment for the patient, which is discussed and explained to the patient, with instructions provided. After the patient leaves the office, the doctor uses a voice-recording device to record the information about the patient encounter. This information may be recorded into a hand-held cassette recorder or into a regular telephone, dialed into a central server located in the hospital or transcription service office, which will 'hold' the report for the transcriptionist. This report is then accessed by a medical transcriptionist, it is clearly received as a voice file or cassette recording, who then listens to the dictation and transcribes it into the required format for the medical record, and of which this medical record is considered a legal document. The next time the patient visits the doctor, the doctor will call for the medical record or the patient's entire chart, which will contain all reports from previous encounters. The doctor can on occasion refill the patient's medications after seeing only the medical record, although doctors prefer to not refill prescriptions without seeing the patient to establish if anything has changed.

It is very important to have a properly formatted, edited, and reviewed medical transcription document. If a medical transcriptionist accidentally typed a wrong medication or the wrong diagnosis, the patient could be at risk if the doctor (or his designee) did not review the document for accuracy. Both the doctor and the medical transcriptionist play an important role to make sure the transcribed dictation is correct and accurate. The doctor should speak slowly and concisely, especially when dictating medications or details of diseases and conditions.

The medical transcriptionist must possess hearing acuity, medical knowledge, and good reading comprehension in addition to checking references when in doubt.

However, some doctors do not review their transcribed reports for accuracy, and the computer attaches an electronic signature with the disclaimer that a report is "dictated but not read". This electronic signature is readily acceptable in a legal sense.^{[4][14]} The transcriptionist is bound to transcribe verbatim (exactly what is said) and make no changes, but has the option to flag any report inconsistencies. On some occasions, the doctors do not speak clearly, or voice files are garbled. Some doctors are, unfortunately, time-challenged and need to dictate their reports quickly (as in ER Reports). In addition, there are many regional or national accents and (mis)pronunciations of words the MT must contend with. It is imperative and a large part of the job of the Transcriptionist to look up the correct spelling of complex medical terms, medications, obvious dosage or dictation errors, and when in doubt should "flag" a report. A "flag" on a report requires the dictator (or his designee) to fill in a blank on a finished report, which has been returned to him, before it is considered complete. Transcriptionists are never, ever permitted to guess, or 'just put in anything' in a report transcription. Furthermore, medicine is constantly changing. New equipment, new medical devices, and new medications come on the market on a daily basis, and the Medical Transcriptionist needs to be creative and to tenaciously research (quickly) to find these new words. An MT needs to have access to, or keep on memory, an up-to-date library to quickly facilitate the insertion of a correctly spelled device.

5 Outsourcing of medical transcription

Due to the increasing demand to document medical records, countries have started to outsource the services of medical transcription.^[15] The global medical transcription services market was valued at USD 41.4 million in 2012 and is expected to grow at a CAGR of 5.6% from 2013 to 2019, to reach an estimated value of USD 60.6 million in 2019.^[16] The main reason for outsourcing is stated to be the cost advantage due to cheap labor in developing countries, and their currency rates as compared to the U.S. dollar. Drivers that Influence Outsourcing to Medical Transcription Partners.^[17]

There is a volatile controversy on whether medical transcription work should be outsourced, mainly due to three reasons:

1. The greater majority of MTs presently work from home offices rather than in hospitals, working off-site for "national" transcription services. It is predominantly those nationals located in the United

States who are striving to outsource work to other-than-US-based transcriptionists. In outsourcing work to sometimes lesser-qualified and lower-paid non-US MTs, the nationals unfortunately can force US transcriptionists to accept lower rates, at the risk of losing business altogether to the cheaper outsourcing providers.^[18] In addition to the low line rates forced on US transcriptionists, US MTs are often paid as ICs (**independent contractors**); thus, the nationals save on employee insurance and benefits offered, etc.^[19] Unfortunately, for the state of healthcare-related administrative costs in the United States, in outsourcing, the nationals still charge the hospitals the same rate as they did in the past for highly qualified US transcriptionists but subcontract the work to non-US MTs, keeping the difference as profit.

1. There are concerns about patient privacy,^[20] with confidential reports going from the country where the patient is located (i.e. the US) to a country where the laws about privacy and patient confidentiality may not even exist, which was overcome as the **Health Insurance Portability and Accountability Act (HIPAA)** became mandatory for all the providers from the outsourced countries. Some of the countries that now outsource transcription work are the **United States and Britain**, with work outsourced to **Philippines, India, Sri Lanka, Canada, Australia, Pakistan and Barbados**.^[21]
2. The quality of the finished transcriptions is a concern.^[22] Many outsourced transcriptionists simply do not have the requisite basic education to do the job with reasonable accuracy, as well as additional, occupation-specific training in medical transcription.^[23] Many foreign MTs who can speak English are not familiar with American expressions and/or the slang doctors often use, and can be unfamiliar with American names and places. An MT editor, certainly, is then responsible for all work transcribed from these countries and under these conditions. These outsourced transcriptionists often work for a fraction of what transcriptionists are paid in the United States, even with the US MTs daily accepting lower and lower rates. However, some firms choose to employ American transcriptionists as they believe the quality of work is better.^{[24][25]}

6 References

- [1] "From papyrus to the electronic tablet: a brief history of the clinical medical record with lessons for the digital age" *Am J Med.* 2013 Oct;126(10):853-7. doi: 10.1016/j.amjmed.2013.03.024
- [2] Lauren Kassell (ed.), with Michael Hawkins, Robert Ralley and John Young, "History of medical record-keeping",

- Casebooks Project, <http://www.magicandmedicine.hps.cam.ac.uk/on-astrological-medicine/further-reading/history-of-medical-record-keeping>, accessed 2015-10-12.
- [3] <http://www.ahdionline.org/VisitorCenter/MTsPartnersInMedicalCommunication/tabid/242/Default.aspx>
- [4] Feste, L., "Electronic Signature – As it is Today", Journal of AHIMA (Chicago: AHIMA 1993), Vol. 64, No. 4, pp. 18-19.
- [5] "Medical Transcription FAQ". by CanScribe Online Career College
- [6] "What Is Medical Transcription?".
- [7] "The Human Touch", by Elizabeth S. Roop, For the Record, Great Valley Publ. Co. Inc., July, 2015, p. 20
- [8] "Medical Transcriptionist Job Description". *The Medical Transcriptionist*.
- [9] Medical Transcription Training Requirements, by Best Medical Transcription Training.com
- [10] Approved Medical Transcription Education Programs, by the Association for Healthcare Documentation Integrity
- [11] The MT school wars, by the MT Exchange
- [12] "Medical Transcription Training FAQ". *CanScribe*.
- [13] "Entry level medical transcription jobs «". *Transcriptionology.com*. 2012-04-05. Retrieved 2013-10-29.
- [14] "Executive Message", JAAMT, Vol. 12, No. 6, November–December 1993. pp. 4-5. Modesto, CA.
- [15] "The Future of Medical Transcription". *healthworkscollective.com*.
- [16] Medical Transcription Services PRNewswire
- [17] Champak Pol (13 December 2013). "Drivers that Influence Outsourcing of Medical Transcription". *Newsroom – Hi-Tech Transcription Services*.
- [18] The Toronto Star " How did we create such bleak job prospects for Canada's youth?" By: Neil Sandell Special to the Star, Published on Fri Nov 30, 2012.
- [19] "Number Cruncher – Pawnshop chain emerges as small-cap gem", Shirley Won, The Globe and Mail, Thursday, Sep. 22, 2011 7:15 p.m. EDT
- [20] <http://www.cbc.ca/news/canada/british-columbia/hospital-record-outsourcing-raises-privacy-safety-fears-1.1160193> Hospital-record outsourcing raises privacy, safety fears. "Some medical transcriptionists and doctors don't want services contracted out, by Kathy Tomlinson, CBC News Posted: Jun 25, 2012 5:48 AM PT Last Updated: Jun 25, 2012 7:14 PM
- [21] "Barbados Looks to Become Medical Transcription Capital". Caribbean Press Releases. 2009-01-28. Government is repositioning Barbados to become the medical transcription capital of the Caribbean. This was disclosed yesterday by Prime Minister, David Thompson, as he revealed plans to boost training in this area and to woo more businesses desirous of setting up additional facilities here.
- [22] Champak Pol. "Medical Billing Transcription – 5 Things to Know Before Outsourcing". *transcriptionservicesindia.com*.
- [23] "Transcription's Outsourcing Conundrum", by Selena Chavis, For the Record, Great Valley Publ. Co. Inc., Sept. 2015, p. 20.
- [24] "White-collar Jobs Once Outside the Global Economy are Heading Overseas". *Applied Medical Systems*.
- [25] "Medical Transcription Products, Transcription Products". *spectramedi.com*.

7 External links

- Medical transcription at DMOZ
- The Association for Healthcare Documentation Integrity (AHDI)
- American Health Information Management Association (AHIMA)
- Joint Commission on Accreditation of Healthcare Organizations, Accreditation Manual for Hospitals, Oakbrook Terrace: JCAHO, 1993.

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