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St Luke's Cardiac History Timeline, 1903-2003

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1903 – 1940

• Setting the Stage
What was happening in 1903 when St. Luke’s was founded (internationally, nationally and locally)?

  o Health in 1903
    • The average life expectancy was 47
    • More than 95% of all births took place at home
    • 90% of all US physicians had no college education
    • The top five leading causes of death were:
      • Penumonia and influenza
      • Tuberculosis
      • Diarrhea
      • Heart Disease
      • Stroke
    • Marijuana, heroin and morphine were all available over the counter and corner drugstores.

  o Local News:
    • Mayor: of Milwaukee David S. Rose
    • Governor of Wisconsin; Robert LaFollette
    • Kevin is researching Milwaukee headlines

  o Companies Founded
    • Harley Davidson founded
    • First successful airplane flight by the Wright Brothers at Kitty Hawk
    • Ford Motor Company founded
    • Crayola Crayons first produced

  o Other Cultural happenings
    • In the first World Series, the Boston Pilgrims defeated the Pittsburgh Pirates five games to three.
    • Top music hits included:
      • In The Good Old Summertime (John Phillip Sousa)
      • Ida (Sweet as Apple Cider) (Eddie Murson)
      • Shine On Harvest Moon (Nora Bayes and Jack Norworth)
      • My Hula Lula Girl (Jean Schwartz & William Jerome)
      • Lazy Moon (Bob Cole)
      • The Burning of Rome (E.T. Paull)
    • The top movie of 1903 was The Great Train Robbery, a ten minute long silent western.
• In 1903, William F. Malone added an office wing to his mansion on the corner of Madison and Hanover and opened it as a general hospital called Malone Hospital. Malone hospital was the first hospital on Milwaukee's South Side. Over the next 17 years, a three-story addition was completed, raising the bed capacity to 40 and new owners took over, changing the name of the hospital to Hanover General Hospital.

• In 1928, a group of local businessmen forming the Lutheran Hospital Association in 1928 to purchase Hanover. The hospital was renamed it St. Luke’s.

• Cardiac developments taking place in the United States and around the world:
  o In 1903, Dr. Willem Einthoven, a Dutch physiologist, developed the electrocardiograph (EKG). The EKG allowed physicians to produce a graphic record of the action of the heart.
  o In 1912, Dr. James B. Herrick, an American physician, first describes heart disease resulting from hardening of the arteries. This discovery lies at the root of many of the diagnostic tools and treatment used today.
  o In 1929, the first documented human heart catheterization performed by Dr. Werner Forssmann in Germany. Dr. Forssmann performed the first catheterization on himself to prove that a catheter could safely be inserted into the human heart. His initial vision for catheterization was to find a way to inject drugs for cardiac resuscitation. He continued to experiment with catheterization on himself, as well as animals. His pioneering efforts were not accepted by cardiologists of the day and eventually he switched to urology and later became a country doctor. In 1956 Dr. Forssmann, along with catheterization pioneers Drs. Cournand and Richards, were awarded the Nobel Prize for their discoveries.
  o In 1938, Dr. Robert Gross, an American surgeon, performs the first heart surgery. Dr. Gross preformed a successful closure of a patent ductus arteriosus (the blood vessel connecting pulmonary artery to the aorta is not open).

1941 – 1970

• In 1941, St. Luke’s purchased land on 29th and Oklahoma in 1941 to build a bigger hospital, but they were unable to begin construction because of material shortages and restrictions on construction during WWII. Until ground was broken, the site was an empty field with a sign proclaiming it was the “Future Home of St. Luke’s Hospital.” Ground was broken in 1950 and the new facility opened in 1952. St. Luke’s continued to use the Madison Street facility until it was demolished in 1958.

• In 1943, Merton Knisely took over management of St. Luke’s. He served St. Luke’s until 1976. Display will include a photo and narrative about his contributions to the hospital, particularly to the development of it’s cardiac care facilities.
• In 1956, St. Luke's implants first heart pump in Wisconsin, the first truly significant cardiac technology milestone for St. Luke's. (need more info from Mia Stone).

• In 1960, Dr. Derward Lepley joins St. Luke's staff and develops state's first cardiac catheterization program at St. Luke's. Photos and narrative will highlight Dr. Lepley's contributions to St. Luke's and cardiac care. In 1965, Dr. Lepley and Knisely recruited John Huston to run the catheterization lab on a full-time basis.

• The Anick family has a history of cardiac firsts.
  o In 1961, John Anick is the recipient of Milwaukee's first pacemaker. The surgery takes place at St. Luke's.
  o In the late 1960s, Dr. Lepley experiments with heart transplantation on animals and develops team to perform surgery on humans. In 1968, Betty Anick received the Midwest's first heart transplant at St. Luke's. She becomes the 64th heart transplant in the world and the 7th or 8th in the United States. This solidifies St. Luke's as a national model of cardiac care. Betty went on to become the world's longest living female heart transplant survivor. Her transplant made her a local celebrity—the media continued to follow up on her life following transplant up until her death in 1974. Betty founded St. Luke's Concerned Hearts Club, a support group for cardiac patients.

• During the mid- to late-1960s, Dr. Dudley Johnson, a resident at the V.A. Hospital begins to experiment with bypass surgery under the direction of Lepley. Dr. Johnson later joins the St. Luke's staff and teams up with Dr. Lepley and become St. Luke's "dynamic duo" of heart care. They form a corporate partnership in 1968 (they split up in 1972).

• By 1968, Drs. Johnson and Lepley had performed 290 open-heart procedures.

• Cardiac developments taking place in the United States and around the world:
  o In 1941, Drs. Andre Cournand and Dickinson Richards employ the cardiac catheter as a diagnostic tool, using catheter techniques to measure cardiac output. Drs. Cournand and Richards viewed the heart and lungs as a single unit in their work to find the causes of various pulmonary diseases and were able to use Forssmann's developments with catheterization to introduce cardiac catheterization to assess abnormal heart function.
  o In the early 1950s, the first pacemakers were being developed. They were not totally implanted in the body--one end of a small wire, called a "lead," was implanted into the heart. The other end of the lead was connected to an external pacemaker that was AC powered. One serious drawback--patients could go only as far as their extension cord and a power failure was a constant concern.
• In 1951, Dr. Charles Hufnagel, an American surgeon, develops a plastic valve to repair an aortic valve. It demonstrated for the first time the possibility of a functionally moving artificial body part.

• In 1952, Dr. F. John Lewis, an American surgeon, performs first successful open heart surgery on 5-year-old Jacqueline Johnson. The procedure was a repair of an atrial secundum defect (a hole in the septum—the wall separating the right and left chambers of the heart). During her ground-breaking operation, hypothermia was used to lower her body temperature long enough to gain direct-vision access to the heart. In 1957, the first battery powered external pacemaker is developed.

• In 1960, the first totally implantable pacemaker is implanted.

• In 1960, Drs. William B. Kouwenhoven, C. Guy Knickerbocker and James R. Jude report the first use of external cardiac massage (CPR) to sustain the heart long enough to get the patient to a defibrillator.

• In 1965, Drs. Michael DeBakey and Adrian Kantrowitz, American surgeons, implant mechanical devices to help a diseased heart. The device was a partial artificial heart—a left ventricular bypass pump—the precursor to the Jarvik 7 heart.

• During the mid-to late-1960s, “demand” pacemakers are introduced in the mud 1960s—they provide stimulation only when necessary. All new pacemakers today are “demand” models.

• In 1967, Dr. Rene Favaloro conducts first bypass surgery of a coronary artery of the heart on a 51-year-old woman in Cleveland. Dr. Favaloro uses a sapenous vein graft (a vein from the leg) in the procedure.

• In 1967, Dr. Christiaan Barnard performs the first whole heart transplant on 55-year-old Louis Washkansky who had incurable heart disease. In a five-hour operation, Barnard successfully replaced Washkansky’s diseased heart with the healthy heart. He knew it was a surgical success when he first applied electrodes and it resumed beating. Washkansky lived for only 18 days more, dying of double pneumonia as a result of his suppressed immune system.

1971 - 2003

• In 1970, Dr. Christiaan Barnard, the physician who performed the world’s first heart transplant, visited St. Luke’s to learn new heart surgery techniques. He was particularly interested in learning about the surgical approached to coronary artery disease developed by Dudley Johnson. Barnard met Betty Anick during his visit.
• In 1970, Elvira Fillner is the second person to receive a heart transplant at St. Luke’s, but her death 25 days after surgery caused St. Luke’s physicians to suggest that an active transplant program at St. Luke’s should be delayed because there wasn’t a solid research program to support it. During the time that Fillner was waiting for her new heart she became good friends with Betty Anick.

• In 1975, the Merton E. Knisely addition to St. Luke’s is dedicated, significantly expanding the hospital. The Knisely and Center buildings are connected during a 1978 expansion project.

• Merton Knisely retires in 1976.

• In 1984, St. Luke’s physicians perform a heart transplant for the first time in 16 years on Frank Kritter, a 38-year-old man from Greendale. A virus infection damaged his heart several years ago and he had six months to live. A transplant was his only hope for survival.

• On November 21, 1986, Ron Smith became the state’s first recipient of an artificial heart, (Jarvik 7 heart). The Jarvik 7 was implanted until a donor heart was found for Smith. A donor heart was implanted in November 26, 1986


• In 1989, SLMC was one of 12 hospitals in the United States to perform artherectomy—a process to remove plaque using a rotating shaver. That same year, SLMC become the first in the state to perform a laser angioplasty.

• In September 1990, SMLC performs its 100th heart transplant on Annette O’Connell of Muskego. Doctors and nurses commented that the biggest advance since the first heart transplant was the development of cyclosporine, an anti-rejection medicine.

• SLMC physicians perform a significant number of national, regional and local firsts:
  - In 1987, SLMC is the first hospital in the United States to use tPA. Tissue plasminogen activator (tPA) is a thrombolytic agent (clot-busting drug). It is approved for use in certain patients having a heart attack or stroke. The drug can dissolve blood clots, which cause most heart attacks and strokes. Studies have shown that tPA and other clot-dissolving agents can reduce the amount of damage to the heart muscle and save lives when given in the first few hours of symptoms.
  - In July 1990, SLMC is first hosp in WI to send patients home with semiautomatic defibrillator. The device allows patients with abnormal rhythm, at risk for sudden death, to shock their hearts back into normal rhythms.
  - In 1991, SLMC is first hospital in WI to use stents (see notes below on stents).
In 1994, SLMC is first in Midwest to implant Heartmate VAD. VADs (ventricular assist devices) are surgically implanted mechanical pumps that help maintain the pumping ability of a heart that can't effectively work on its own. VADs are typically implanted in patients who are waiting for a heart transplant and whose hearts are too weak to function on their own.

In 1998, SLMC first permanent VAD in Midwest.

In 2001, SLMC is the first hospital in Milwaukee to use IVB. Occasionally some patients develop a re-narrowing of the arteries following angioplasty (restenosis). IVB delivers a small amount of radiation locally to re-opened the artery.

In 2001, SLMC is the first hospital in the nation to use of microwave ablation for atrial fibrillation (a short circuit in the natural electrical system that makes the heart beat). During the procedure, microwave energy to create a series of lesions on the heart's surface. The lesions form a wall that channels the heart's electrical impulses into a regular rhythm.

In 2001, SLMC is first in Midwest to do laparoscopic (“closed chest”) bypass surgery. This procedure is done through tiny incisions and does not require the surgeon to cut through the breastbone. The patients are able to recover and return to normal activities sooner than with traditional bypass surgery.

- SLMC is top 10 in heart transplant volume and has best survival rate (2001).

- Photos and brief narrative about cardiac developments taking place in the United States and around the world:
  - The development of the lithium battery in 1975 extends the life of pacemakers to 10 or more years.
  - In 1977, the first human coronary balloon angioplasty performed intraoperatively by Drs. Gruentzig, Myler and Hanna in San Francisco. Later that year, angioplasty is performed on an awake patient in a catheterization lab. During angioplasty, a tiny balloon is inserted into the artery and is inflated to open the clogged passage and restore blood flow.
  - First Jarvik 7 heart in 1982, Dr. Willem DeVries implants a permanent artificial heart designed by Robert Jarvik into a patient. The patient, Barney Clark, was not a candidate for transplantation and was a good candidate for an artificial heart. Clark survived for 112 days with the heart.
In 1987, coronary stents are first used. They become a commonplace treatment in the mid- to late 1990s. A stent is a wire mesh tube used to prop open an artery that's recently been cleared using angioplasty. In certain patients, stents reduce the re-narrowing that occurs after balloon angioplasty. Stents also help restore normal blood flow and keep an artery open if it's been torn or injured by the balloon catheter.

By 1997, 1 million angioplasties have been performed worldwide.

The Future
- New Heart Care Center and Patient Tower set to open in 2004.
- Need further information from Mia Stone on future cardiac care developments at SLMC.