This year, Royal Columbian Hospital celebrates 150 years of excellent service and patient care since it first opened its doors in 1862 with 30 beds, a historic milestone for B.C.'s first hospital. Today, RCH is one of the busiest emergency hospitals, treating the most critically ill patients from Fraser Health and the province, with the busiest air ambulance in B.C. Serving one in three British Columbians, RCH is the area's only hospital to have high-risk maternity, a neonatal intensive-care unit, cardiac and neurosciences all on one site. To mark this milestone anniversary, RCH Foundation has launched a "150 Reasons to Give" fundraising campaign to buy new medical equipment to continue to provide the highest level of patient care. This is the first of a 10-part series running in The Province sharing the stories of people whose lives were touched, changed and saved by their experience at RCH. To donate to the Royal Columbian Hospital Foundation, please go to rchcares.com or call 604-520-4438.

150 ROYAL COLUMBIAN HOSPITAL

Marco Lundy suffered serious injuries after being thrown from a horse she was training last October. The trauma team at RCH wrestled with a life or death decision in treating her lacerated liver.

Tough call for trauma team

HEALTH: Woman's life hangs in the balance

LINA TOYODA
THE PROVINCE

Tam Lundy got a call at 8.30 p.m. in the evening of the day she had stepped off an airplane, jet-lagged, from Europe. It was the kind of call no parent wants to get.

Her daughter, Marco Lundy, 36, had been thrown from a horse that morning and was at Royal Columbian Hospital in critical condition. Marco had a severely lacerated liver, so severe that it had nearly split in half.

"She is lucky to be alive," says RCH trauma nurse practitioner Kathleen Fyvie.

Marco works for Terry Clyde Stables in Langley, where she is immersed in her life's passion; racehorses. On Oct. 5, 2011, the horse she was training reared up and fell over backwards, dumping Marco to the ground and landing on top of her.

Her work colleagues immediately called 911. After a brief stop at the local community hospital, Marco's condition was deemed life-threatening and she was rushed by ambulance to RCH.

Marco's injuries consisted of broken ribs, a collapsed lung, fractured pelvis and a life-threatening, high-grade liver laceration.

Led by trauma physician Barry Miller and Fyvie, the RCH team — including intensivist physician Derek Gunning and surgeon Morris Bojm — decided to take a non-operative route.

"The liver injury was unique in terms of the extent of the laceration," says Fyvie.

Due to the high risk of blood-clot formation after traumatic injuries, it is common practice to give patients preventive medication to thin their blood, she says.

"However, in Marco's case the risk of increased bleeding due to this medication was too great. Sequential compression devices were placed on her legs in an effort to prevent clot formation. An IVC filter was placed in the large blood vessel that takes blood from the legs and organs to the heart, to reduce the possibility of any clots reaching the heart, which could be fatal."

Marco had difficulty breathing because of the pain from the rib fractures and pressure on her diaphragm caused by the extensive blood collection in her abdomen. This put her at high risk of pneumonia and she was admitted to the High Acuity Unit for close observation in the early days of her stay.

Nurses and respiratory therapists worked to ensure her lungs were functioning. Acute-pain service NP Brenda Poulton followed her daily adjusting her pain control, but complications arose as a result of her injury.

"If you operate on a high-grade liver injury there is a high chance of death, and if you don't operate and then manage the injury incorrectly, the patient could also die. Either choice is life-threatening," said trauma surgeon Michelle Goecke.

"The RCH trauma team had to make a difficult decision with risks either way. We decided that Marco was stable enough to attempt non-operative management," said Goecke, who was intricately involved in Marco's management. "We were on uncharted territory. This type of injury would rarely be managed non-operatively."

As Marco started to show signs of recovery, the IVC filter was removed and she began slowly walking in her room. The following day, however, Marco started to experience increased abdominal pain.

A CT scan showed new bleeding from the liver and she was sent to interventional radiology for specialized treatment. At the same time, a clot was discovered in a vein so the IVC filter was reinserted.

Thinking back on the whole experience, Marco's mother Tam recalls her daughter "crashing" in a room full of people.

"I have done a lot of work in health care as a human- and social-development consultant, but I developed a lot of respect for the doctors and nurses at RCH. Not just for the intervention but for the total level of caring," she says. "The system was interested in learning. People were paying attention and were quick to respond."

Goecke points to the rarity of the extent of Marco's injury. "Some unique decisions were made that ultimately paid off," she said.

She says that Marco's successful recovery was due to thoughtful and attentive management and intervention by RCH staff and physicians, along with Marco's baseline good health and tenacious spirit.

Throughout this time, mom stayed close by. "Spending time with my daughter at RCH, I fell in love with her all over again. I saw what strong stuff she is made of. Not that I didn't know that, but there it was in front of me," she said.

After a two-month stint in hospital, Marco went home. Today, her healing continues, and although she's back at work, she's still not allowed on horseback. She will have a further CT scan in October and is hoping for a resounding all-clear status.

"I feel just wonderful about getting on a horse again. I have loved them all my life, from when first I knew what they were," says Marco.

Of her time at RCH: "For such a rotten thing to have happened to me, I had an awesome experience in the hospital. It was a good environment. I was surrounded by lots of laughter — and I'm profoundly grateful to the nurses and doctors who saved my life. They were amazing."

Dr. Robert Hayden, right, the first physician to perform open-heart surgery at Royal Columbian Hospital in1991, discusses the technically advanced Cell Saver with Dustin Spratt, chief perfusionist for Royal Columbian Hospital. Mr. and Mrs. P.A. Woodward's Foundation donated $40,000 toward the purchase of the new machine.

Saving blood at Royal Columbian

WILLIAM MBAHO
THE PROVINCE

Donating blood is in high demand, but donating equipment to save a patient's blood is rarer still.

Patients who undergo surgery at Royal Columbian Hospital can breathe a sigh of relief knowing that donors like Mr. and Mrs. P.A. Woodward's Foundation are helping to ensure equipment is available to safely store and reuse their blood during an operation.

The technology is called a Cell Saver and it is invaluable in helping patients who would otherwise rely on blood transfusions.

Used to suction blood from surgical sites, the Cell Saver washes the blood, removing all contaminants such as broken blood cells and fat molecules and gives the patient back their own blood, full of healthy red blood cells.

At Royal Columbian Cell Savers are used 70 per cent of the time in cardiac surgery, but they are also used in any situation of atastrophic blood loss for trauma patients or for patients with large blood-vessel issues such as aneurysms.

"The idea behind the Cell Saver is that we are able to salvage the patient's own blood during the surgery," says Royal Columbian Hospital's chief perfusionist, Dustin Spratt.

Perfusionists are specialists who run heart and lung machines during surgery. Cell Savers help about 450 patients a year at Royal Columbian. The hospital has five Cell Savers and they cost about $45,000 each.

"With a Cell Saver we're able to take blood and filter it," says Spratt. "We're left in the end with pristine blood cells. This decreases the likelihood of having to give the patient a blood transfusion."

It is always best to use a patient's own blood, he explains.

"We also use the Cell Saver for people like Jehovah's Witness believers who object to having blood transfusions."

Royal Columbian has had Cell Savers for about 20 years, but for the last 10 years the current Cell Savers the hospital had were getting on and needed to be replaced.

"We were very fortunate that Mr. and Mrs. Woodwards came along and offered to buy one for us," says Spratt.

"It is fantastic to have donors like the Woodwards family to help us out, because funding is a challenge in health care. Sometimes we have equipment that comes to the end of its life and we have to push beyond. So it was very timely for them to help us get this equipment."

Spratt explains the new equipment also uses more advanced technology that collects red blood cells better, and the result also helps stops bleeding.