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GARY YOKOYAMA, THE HAMILTON SPECTATOR

Nurse practitioner Peggy Carter-arrowsmith offers pre- and postnatal care to moms from some of Hamilton's poorest neighbourhoods.

Starting life 'on the right trajectory'

BY STEVE BUIST

From her second-floor office window at the corner of Main and Sanford, Peggy Carter-arrowsmith looks out on one of Hamilton's most impoverished neighbourhoods.

Carter-arrowsmith is a nurse practitioner, and she provides prenatal and postnatal care to a number of young, at-risk mothers and their babies. Many of her patients come from the poor neighbourhood that sits at the doorstep of her office.

Good health doesn't start in a hospital or a doctor's office.

Good health starts in the womb, and that's why Carter-arrowsmith struggles mightily to help, why she takes her job home with her at night, and why, occasionally, she'll even buy groceries for a patient.

"A lot of the teen moms I have are repeating the cycle of their parents," said Carter-arrowsmith.

"Then there are people living on the fringe of the law," she said. "I have a lot of young moms here whose partners are in jail, or young women who are on probation, and they're not accessing health care because they don't trust the system."

"They are homeless so often that I can't keep track of them," she added.

The Spectator's groundbreaking health mapping project shows there are massive differences between Hamilton neighbourhoods in health and social outcomes related to childbirth, the early years of development and education.

One major concern uncovered is Hamilton's high rate of babies born at a low birth weight.

The city's 8 per cent rate of low birth-weight babies as a proportion of total births is one-third higher than the national average.

The differences between Hamilton neighbourhoods, however, are shocking.

There were 24 neighbourhoods that had a low birth-weight rate of 0 per cent, based on the project's two years of data. One Stoney Creek neighbourhood had 62 births recorded during that period and not a single one was a low birth-weight baby.

But there were also seven neighbourhoods that had low birth-weight rates higher than 20 per cent, including one rural Flamborough neighbourhood where

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ON THE WEB: Visit thespec.com for a slide show, Mission of Care, with Peggy Carter-arrowsmith.

the rate was 47 per cent.

The average rate of low birth-weight babies in sub-Saharan African countries is 15 per cent, according to the World Health Organization.

Low birth weight is defined as less than 2,500 grams, or about 5.5 pounds.

The issue is a concern because low birth-weight babies can suffer from poorer health throughout life, requiring greater use of health-care resources.

A major 2007 report on the problem from a nonprofit health institute described low birth weights as "a complex issue with profound short and long-term consequences for individuals, families and society."

"It has significant cost implications and needs to be urgently addressed because of the continuing rise in preterm birth rates across Canada," the report added.

(See Factors that contribute to a low birth-weight or preterm baby, above right.)

One Alberta study showed that premature babies required five times more in direct health costs than full-term babies over the first seven years of life.

Neil Johnston, a Hamilton health researcher who has collaborated on The Spectator project for three years as the chief data analyst, said he first looked at birth-weight outcomes in the city

15 years ago.

He was shocked by what the current data revealed.

"Nothing has changed in 15 years," Johnston said angrily. "I think that's appalling."

"I think that it's indefensible that any society as wealthy as ours can tolerate that roughly 8 per cent of the babies born in this community are born with an almost immediate disadvantage."

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"Every night and every morn, some to misery are born," wrote the great English poet William Blake in his 1803 work, *Aururies of Innocence*.

"Some are born to sweet delight. Some are born to endless night."

Meet Dr. David Price, chair of McMaster University's department of family medicine.

He's also the founding director of the Maternity Centre of Hamilton on James Street South, where the goal is to improve birth outcomes from Blake's endless night.

The Maternity Centre is a collaboration between every piece of the puzzle that makes for a healthy birth outcome — family physicians, academic physicians, nurse practitioners, social workers, public health nurses, dietitians and a lactation consultant.

"We take all comers," said Price. "If you're pregnant, that gets you in."

The Maternity Centre's policy is that every single pregnant woman who shows up gets a family doctor, and the doctor also agrees to take on members of the immediate family.

So far, the success rate is 100 per cent.

"We are really good at taking the person who has just arrived here two weeks ago and is 36 weeks pregnant and getting them all organized and connected," said Price.

"We've had quite a bit of success in taking some of these most disadvantaged, high-risk women and helping them."

He recalls the case of a young woman who showed up in the 15th week of pregnancy, addicted to crack cocaine and vomiting all the time.

"She required an awful lot of resources," said Price. "It was really clear to me that as a family doctor, I wouldn't have been able to really help her. But in combination with my nurse practitioner, with the social worker in the clinic, with the public health nurse and the dietitian, we were able to get her off the crack cocaine."

Two years earlier, the same young woman had delivered a severely premature baby at 23 weeks of pregnancy. The baby spent time in a neonatal unit and eventually died.

This time, Price and his team were able to get the young woman very close to a full-term pregnancy.

"No matter how much energy that one young woman took, we still saved the medical system a bucket of money by having a child born at 36 or 38 weeks instead of 23 weeks," said Price.

What he remembers most vividly is when the young woman returned to his office two years later, with her toddler.

"She said 'Hey Dr. Price, I still want to show you where I'm at. I still have the baby, I live at home, I finished Grade 12 and things are going well,'" he said.

"I think we made a huge difference to

Factors that contribute to a low birth-weight or preterm baby:

■ Women younger than 20 or over 35 are more likely to have a preterm or low birth-weight baby.

■ Women who themselves were born small-for-gestational-age are also more likely to have a small-for-gestational-age baby.

■ Preterm birth is associated with mothers who experience acute or high levels of chronic stress, racial discrimination and anxiety.

■ Low birth weight is also related to maternal stress, a lack of social support and being a single parent.

Violence/abuse and maternal trauma is correlated with having a preterm birth or a low birth-weight baby.

■ Mothers residing in poor neighbourhoods and living in an ethnically dense setting are associated with a greater likelihood of a preterm-birth baby.

■ Women who smoke, are exposed to second-hand smoke, drink alcohol or use cocaine/narcotics are more prone to having a preterm or low birth-weight baby.

— Healthy Mothers-Healthy Babies: How to Prevent Low Birth Weight (2007 Consensus Statement)

that young woman and we made a difference to her baby as well," Price added. "Hopefully we've made a difference to that family and stopped that baby from growing up in an environment where it doesn't have a chance."

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The Spectator's data analysis revealed a number of other stark differences between Hamilton neighbourhoods for factors related to birth, early-child health and education:

■ The average rate of hospital bed use for newborns ranges from 8.8 days per birth in one Dundas neighbourhood to 1.7 days per newborn along Hamilton's Beach Strip.

■ In the inner-city neighbourhood bounded by James Street North, Cannon Street East, Wellington Avenue North and King Street East, almost 70 per cent of the children under age 18 live below the poverty line.

By contrast, there are seven neighbourhoods in Hamilton where 0 per cent of children under age 18 live below the poverty line.

■ In the inner-city neighbourhood bounded by Sherman Avenue North, Cannon Street East, Gage Avenue North and the rail line near Barton Street, nearly 32 per cent of all families are headed by a single mother.

In one rural Ancaster neighbourhood, 2 per cent of all families are headed by a single mother.

In fact, the top 50 neighbourhoods with the highest rates of single-parent families headed by a woman are all found in the

HOW WE DID IT

The Spectator, in collaboration with health researcher Neil Johnston, obtained nearly 400,000 anonymized records representing hospital admissions and emergency room visits for every person listing Hamilton as a home address, for the period April 1, 2006, to March 31, 2008.

The records were grouped into geographic areas called census tracts, roughly equivalent to city neighbourhoods. Census tracts are used by Statistics Canada to measure a wide variety of social, economic and health variables within urban regions of Canada. For this project, there were 130 usable census tracts for the amalgamated City of Hamilton.

Twelve health variables and 12 social and economic variables were chosen. With the help of McMaster University mapping expert Patrick DeLuca, maps were created for each variable, showing the differences between Hamilton's 130 neighbourhoods. Also created was a death statistics map and an overall ranking map.

The maps, rankings and rates were then analyzed to examine the connections between health and socioeconomic variables in Hamilton's neighbourhoods.