In the Moms in Recovery pedatric clinic, Steven Chapman, MD, examines Harmony while her mom, Dominique, looks on.

(all photos by Lars Blackmore)

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Pairing Compassion with Evidence to Ameliorate New Hampshire's Opioid Epidemic

by Susan Green

From grassroots community efforts to scientic evidence-based outcomes, researchers and physicians from the Geisel School of Medicine and Dartmouth-Hitchcock are working together in a common mission to stem the intergenerational cycle of substance use.

Here's a look at their stories.

OPIOID DEPENDENCE IN PREGNANCY

Julia Frew, MED '05, an assistant professor of psychiatry and of obstetrics and gynecology, sees the effects of substance use daily. As director of Dartmouth-Hitchcock's Center for Addiction Recovery in Pregnancy and Parenting (CARPP), she oversees a busy practice helping pregnant women who are in recovery from addiction.

Pregnant women struggling with opioid use are motivated to seek treatment for a variety of reasons—concern for their baby's health and a desire to be a good mother among them. But their road to recovery is fraught with obstacles—stigma, a history of trauma (both physical and mental), intergenerational drug use, and a lack of maternity care integrated with addiction treatment are just a few. And in the state's rural environment, a lack of reliable transportation looms large, leaving women choosing between prenatal care or addiction treatment because receiving both requires traveling to separate locations.

CARPP's care team noticed a pattern of missed appointments for women with opioid use disorders, signaling a flaw in the cycle of care and the need to improve access to treatment. To solve this ongoing problem, they made the case for integrating prenatal care with addiction treatment in one location. Their reasoning? Women would have overall better outcomes.

Moms in Recovery, launched in 2013 under the auspices of CARPP, offers a comprehensive, team-based, family-centered, integrated approach to prenatal care and medication assisted treatment (MAT), along with psychiatric treatment for pregnant and parenting women with opioid use disorder—all under one roof. Many women who have opioid disorders in pregnancy also have other psychiatric disorders, such as post-traumatic stress disorder, depression, and anxiety.

The advantage is women now receive the recommended number of prenatal visits and have pregnancy weight gain in the normal range. "By and large they have full term pregnancies," Frew notes. "Only a small percentage of newborns need medicine for withdrawal symptoms."

Though her work in reproductive psychiatry initially didn't include addiction, Frew began seeing and

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treating more women with substance use problems because of the state's escalating opioid crises. Now medical director of Moms in Recovery, she is leading a grant-funded collaborative initiative to provide integrated MAT for pregnant women with opioid use disorders in seven maternity care sites across New Hampshire—Bedford, Berlin, Dover, Keene, Nashua, Laconia, and Littleton.

"The idea is to build smaller versions of our successful program around the state so more pregnant women can access this type of treatment," Frew explains. "This means practices and clinics that provide prenatal care to women will soon be offering medication assisted treatment too.

"A goal of this program is to interrupt the intergenerational cycle of addiction," she adds, "and decrease the associated financial and social impact on New Hampshire's communities and its healthcare system."

OPIOID-EXPOSED NEWBORNS

As opioid use rises, so does neonatal abstinence syndrome (NAS). NAS refers to an array of problems newborn babies experience when withdrawing from in utero exposure to narcotics. Withdrawal symptoms include increased fussiness, poor feeding, tremors, and diarrhea.

In neonatal intensive care units (NICU), treating babies experiencing opioid withdrawal from exposure in pregnancy (either mothers using substances illicitly or on a prescribed medication for their opioid use disorder) is costly and requires separating mother and infant. But with groundbreaking new treatment developed at Children's Hospital at Dartmouth-Hitchcock (CHaD) opioid-dependent newborns are no longer separated from their mothers.

Back in 2012, CHaD pediatricians Alison Holmes, MD, MS, MPH, and Bonny Whalen, MD, both of whom have long been studying NAS in New Hampshire's population, wanted to see if keeping infants with their mothers would ease opioid-dependent babies' withdrawal symptoms. They began a multi-year study testing their theory that NICU babies benefit from rooming-in with their mothers.

The evidence-based findings of rooming-in were indisputable—it reduced the average length of stay for at-risk babies from 16 to 12 days, and the number of babies given morphine dropped too, from 46 to 27 percent, Holmes says. Inspired by the results, Whalen expanded the rooming-in model of care, which is now part of a more comprehensive program.

The most commonly used method for evaluating babies for signs of opioid withdrawal is the Finnegan Neonatal Abstinence Scoring Tool. Developed in the 1970s, the Finnegan Tool uses 21 signs of symptom withdrawal to evaluate babies. Whalen and fellow ChaD pediatrician Kathryn MacMillan, MD, MPH, switched from Finnegan scoring to a simpler model.

They, and colleagues at Yale Children's Hospital and Boston Medical Center, created a new assessment tool scoring based on three reliable, easily observed symptoms affecting a baby's ability to function—eating, sleeping, and consoling (ESC).

"Before prescribing medication, the full care team assesses the baby's environment to see whether parents are holding their babies with skin-to-skin contact, effectively swaddling them, and keeping the room quiet—generally providing a calm environment for the baby," Whalen explains. Noisy environments overstimulate babies in withdrawal.

Parents play a crucial role in this approach to deciding whether or not a baby needs a medication to treat their withdrawal—rather than scoring babies in their bassinette, they are assessed while being held in their mother's arms.

"With these changes in our care approach," Whalen further explains, "90 percent of babies are able to be cared for with optimal non-pharmacologic care alone—with the majority provided by parents. Only 10 percent now require pharmacologic treatment and our length of stay is now down to 6 or 7 days." Nationally, about half of all babies are treated pharmacologically in the NICU, and the average hospital stay is 20 to 22 days.

Having achieved their intentions, Holmes says this is as good as it can be in terms of the in-patient setting. Whalen and MacMillan are now studying the safety and efficacy of the ESC care model in the Northern New England Perinatal Quality Improvement Network. So far, they have trained clinicians in 30 hospitals across New Hampshire, Vermont, and Maine. Whalen has also led trainings for other quality improvement collaboratives in Massachusetts, Michigan, and British Columbia.

"This has been amazing work and there is so much we are doing collaboratively," Whalen says. "It highlights how important prenatal care is for moms, and to prepare families as much as we can ahead of time to let them know how important they are in the care of their babies. If they can be present, their baby is significantly less likely to require treatment."

RECOVERY AND PARENTING

Postpartum is a difficult time for women no matter how few their other challenges—new mothers are more likely to relapse during this

Savannah Smith, left, and Julia Frew MED '05, at Moms in Recovery.

Bonny Whalen, MD, left, and Alison Holmes, MD, right, at Dartmouth-Hitchcock.

time than during pregnancy. The good news is treatment retention for women six months after delivery is more than 60 percent for women who received prenatal care through Moms in Recovery, even if they relapse.

"It's hard to pinpoint exactly what factors contribute to relapsing," Frew concedes. "When we first began doing this work, we focused on pregnant women and the first six weeks after giving birth. After that, we thought they could return to general addiction care. But over the years we have shifted toward more postpartum and pediatric care and now keep women in the program longer because they need even more support after the baby is born."

Moms in Reovery's intensive outpatient program (IOP) provides a higher level of care for women who need more than weekly outpatient visits. Prior to creating the IOP, women who needed more support were referred to external programs, but now a pediatric clinic, day care, transportation, housing, education, and peer recovery are available onsite.

Because many women experience food insecurity and are without transportation, the Upper Valley Haven provides an onsite food shelf and the Women's Health Resource Center runs a diaper bank. "Though the women use Medicaid transportation to get to their appointments, Medicaid won't take you to a food bank—pulling these services together reduces barriers to care and allows us to continue treating women if they are relapsing," Frew says.

Women in the program work in tandem with their care team by contributing their thoughts about the type of support and treatment they and their families need. And as problems emerge during recovery, the women continue offering approaches to care.

"A lot of our best ideas have come from the moms themselves. At every level we have had moms advise us on how to offer better care," explains Dartmouth pediatrician Steven Chapman, MD. "They have helped us to think about the best way to design a visit, ask questions, and how to talk about child development. In the pediatric clinic alone, we have four moms who are helping us as co-designers of care."

On a recent Wednesday morning, the Moms in Recovery waiting area is bustling with activity—pregnant women and mothers and their babies wait for appointments while toddlers enjoy supervised playtime. The atmosphere is one of camaraderie. Many of the women know each other from group therapy and it is clear that close relationships have developed between them and their care team. Lindsey and Dominique are among those gathered—Lindsey waits for a prenatal visit with midwife Daisy Goodman, DNP, and Dominique has brought her cheerful six-month-old daughter to the pediatric clinic for a well-baby exam.

"We are seeing the opioid epidemic through parents—either in recovery or not—and their children who are coming into our clinics," says Chapman, an assistant professor of pediatrics, who directs the Boyle Community Pediatrics Program. "This interdisciplinary approach is designed to do a better job of caring for mothers in early recovery and helping kids get off to a healthy start. These moms, who are doing the really hard work in recovery deserve, and their babies certainly deserve, everything we can do for their ongoing recovery and healthy growth and development."

Integrating pediatric care into recovery treatment for moms represents a shift in the process, but if we think about addiction and recovery as chronic conditions, which they are, the healthy growth and development of children is an important part of their parent's recovery.

Chapman, president of the New Hampshire Pediatrics Society representing more than 300 pediatricians, says he is focusing that group's work on developing recovery-friendly pediatric practices, which are essential to the state's response to the opioid epidemic.

Recovery-friendly practices begin with busting stigmatizing labeling—rather than referring to someone as a drug abuser or addict, think of them as a person first by acknowledging their strengths along with their challenges because, as Chapman says, "we are all fighting our own battles, and stereotypes based on perception rather than facts are devoid of hope.

"Every single mom we see wants to do the best for her baby. It's very common for these mothers to have a sense of worthlessness and very low self-esteem so it's very important to focus on their strengths," he points out. "Honestly, our medical system has not been great about doing this. We are doing better now, but we still have a long way to go."

The long-term promise of supporting mothers in their recovery and where substance use is not part of their children's environment, represents an opportunity to break the tenacious cycle of intergenerational drug addiction. If babies can be kept out of foster care and parents out of jail, everyone wins.

"I think that's critical for this population—

Sarah Lord, PhD.

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Daisy Goodman and Lindsey during a prenatal visit at Moms in Recovery.

it has tremendous potential to change the lives of the mothers and of their children," Frew asserts. "For me, this is hopeful work because we see people get better—get their lives together—and a lot of these women are fantastic moms because they have the support they need."

Photos of mothers and their babies decorate the walls of Chapman's office, but one photo stands out—that of a women and child he met through Moms in Recovery. "I've been seeing her baby in the pediatric clinic for about 16 months," he says. "She's a beautiful baby and her mother is so proud of her. To see the evidence of this woman's success is gratifying. She's a hero."

EVIDENCE-BASED SOLUTIONS

Daisy Goodman directs women's health services for Moms in Recovery and is a clinical assistant professor of obstetrics and gynecology. She suggests that substance use often begins early in life and builds through time—kids are primed for this scenario through growing up in an intergenerational cycle of substance use, violence, and other challenges. "Many of our patients had chaotic childhoods and are now struggling to change that reality for themselves and their children."

Goodman and Sarah Lord, PhD, an assistant professor of psychiatry and of pediatrics who directs the dissemination and implementation core at Dartmouth's Center for Technology and Behavioral Health (CTBH), lead a multidisciplinary team that recently launched a comparative study of maternal and infant outcomes of integrated and traditional referral-based models for providing MAT for pregnant women with opioid use disorders.

This is an area where evidence-based practice has been scrambling to catch up with need, Goodman acknowledges. Integrating treatment for opioid use into the prenatal setting promises to significantly improve access to care relative to referral models, but scientific evidence proving that one model is superior to the other is lacking—there are inherent risks for either model. For example, although access to treatment during prenatal care may increase in an integrated model, there can be barriers to postpartum MAT access in a prenatal care setting model.

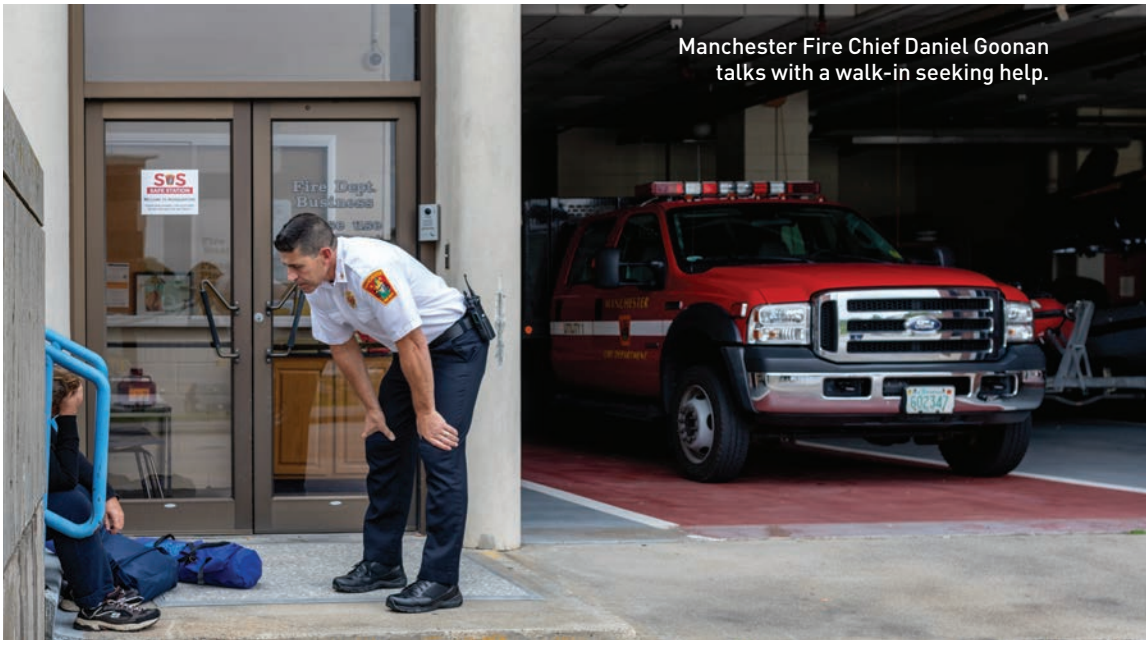
"The thing that is most powerful in working with Sarah is being able to combine her research expertise with our deep clinical experience," Goodman says. "In this study, we will be able to look at variation between and within these treatment models to identify key components associated with positive clinical outcomes and patient experience."

Working with 21 maternity care practices throughout New Hampshire, Vermont, and Maine, Lord and Goodman will follow the outcome trajectories of women who receive care in one of the two models to six months postpartum.

Aligned with community, practice, and patient engagement, their four-year Patient-Centered Outcomes Research Institute grant-funded study sprang from both clinical knowledge and interviews with women with opioid use disorders, Goodman notes. Women in treatment helped identify research questions and will be integrally involved in the study as part of the project advisory board.

"At the study's conclusion, we will share the results with our patient advisors—they will help guide how best to disseminate findings," Lord says. "We will also work with practice and state Medicaid partners to determine next steps for practice, policy, and research."

This study is part of a program of research being developed by Lord, Goodman, and their team. Other work includes a mobile app to support recovery and safe parenting, and a yoga-based mindfulness relapse prevention intervention for pregnant women.



Manchester Fire Chief Daniel Goonan talks with a walk-in seeking help.

Andrea Meijer, Lisa Marsch, and Chief Goonan, left to right, in one of Manchester's parks—a primary location for opioid dealers.

COMMUNITY RESPONSE TO ACCESS

Looking beyond traditional healthcare systems, CTBH investigators are deeply involved in a multi-faceted, collaborative approach to solving the opioid use problem. Through a joint effort with the Dartmouth-based Northeast Node of the National Drug Abuse Treatment Clinical Trials Network (CTN), investigators are examining partnerships that break free from traditional models of addiction treatment.

"The need is extraordinary," says Lisa Marsch, PhD, CTBH director and the Andrew G. Wallace Professor of Psychiatry. "Opioid use and overdose deaths are not declining—improving access to treatment needs be part of a solution to stemming the crises."

Last year, Andrea Meier, a senior research scientist at CTBH and director of operations for CTN, led an evaluative study of Safe Station—a creative community-based response to immediately connect people affected by opioid use to treatment. Manchester Fire Department, New Hampshire's largest city fire department, launched the free service in 2016 to reduce barriers to accessing treatment—firefighters offer non-judgmental assistance 24/7 to those who walk into the station seeking help. Since its inception, the innovative program has helped thousands of people, and fire departments in cities beyond New England are interested in learning how to emulate this model in their communities.

Investigators sought to understand the program's key features to determine whether or not they facilitated or impeded its effectiveness and whether the program could be widely implemented. While the study revealed areas needing improvement, it overwhelmingly found that Safe Station delivered on its promise.

Catholic Medical Center in Manchester has also made significant changes to work flow and space utilization to accommodate their increased emergency department (ED) traffic. Hospital EDs are experiencing a "tidal wave" of people overdosing along with those seeking treatment for attendant health-related issues such as heart valve infections.

With funding from the National Institute on Drug Abuse to CTN, Dartmouth is pioneering and studying a patient choice initiative to screen users who come into the ED to see if they are eligible for MAT, and if they are, allows them to immediately begin treatment for opioid addiction.

"It's a moment of opportunity and a point of access for treatment—this may be one place where we can ask if they want to start opioid treatment right here, right now," Marsch says. "Patients can choose to receive either a sublingual version of MAT that works for 24 hours or they can choose a longer-lasting injection, which can stabilize them for one week, facilitating referrals to community partners who will accept them into ongoing treatment."

Whether patients accept or decline MAT, they are asked if researchers may follow up with them when they leave the ED to see how they fare. By continuing to meet with all of those who agree to ongoing conversations, investigators plan to gain an understanding of the trajectories of those populations.

"We are really excited about this initiative and study taking place in two New Hampshire hospitals—Catholic Medical Center in Manchester, and Valley Regional Hospital in Claremont," she says. "Especially being able to see how doing this in a community hospital or an academic medical center impacts not only patients, but the ED service delivery system."

Most people give up seeking treatment because of the statewide lack of access to MAT, but Marsch remains optimistic. "This community initiative is one example of the many creative ways in which we can reduce barriers to care and help people suffering from opioid use disorder get access to effective and science-based solutions."

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William Goodman, MD, in Catholic Medical Center's emergency department.