

CASE 10

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening¹

*Ava John-Baptiste, PhD (Assistant Professor, Western University)
Yoshith Perera, MD, MPH (MPH Class of 2014)
Sudit Ranade MD MPH MBA CCFP FRCPC
(Medical Officer of Health, County of Lambton | Lambton Public Health)*

“What would be the impact if we adopted a different model?” This was the question posed by Dr. Philip Singe, the Medical Officer of Health for King Public Health in the Region of King. He was meeting with the health unit leadership to discuss the Family Health portfolio, particularly the Healthy Babies, Healthy Children (HBHC) Program. Philip had been poring over the program budget for weeks. Ministry funding for the program had been stagnant for years, forcing him to make two key decisions. First, he had to decide which part of the HBHC suite of programs to prioritize. The unit’s high contact, high intensity approach to in-hospital postpartum screening meant that the other main area of the HBHC program suffered. High-risk women scheduled for home visits after being discharged from the hospital spent a long time on the waiting list. The unit could rearrange the services, use less staff in the hospital, and redirect staff to home visits. Second, he had to decide whether or not to subsidize the HBHC program using the health unit’s operating funds, or reduce the number of HBHC staff in order to stay within the program budget. In the conference room adjacent to his office, Philip sat with the program manager, Praveen Gill, and the director of the Family Health portfolio, Vanessa Thomas. Praveen and Vanessa had been tasked with addressing the challenges. The two had spoken extensively with hospital partners involved in postpartum screening. It was time for a decision on whether or not King Public Health would change the way it delivered services under this program.

The Ontario provincial government introduced the Healthy Babies, Healthy Children (HBHC) program in 1998. The program vision is to ensure that “every child at risk (prenatal to age six) in Ontario will be provided with opportunities to achieve his/her optimal potential” and “... have access to effective integrated programs and services that support healthy child development” (Ministry of Health and Long-Term Care, 2001). HBHC identifies children at risk of “physical, cognitive, communicative and/or psychosocial problems” and links children and their families to preventive and early intervention services (Ministry of Health and Long-Term Care, 2001). Program components include prenatal and postpartum screening, home-visiting services for children prenatal to age six that have been identified as high risk, and case management services linking children and families to community-based health and social services (Ministry of

¹The case contains fictional elements, including the Region of King, the municipalities of Weston, Keewatin, and Oxford, King Public Health Unit, and its personnel. Hospital names and financial data are also fictional. All other elements, including the Province of Ontario, Greater Toronto Area, other health units, the history, goals, and components of the Healthy Babies, Health Children (HBHC) program, are real.

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

Health and Long-Term Care, 2001). HBHC utilizes a screening tool that can be administered to pregnant women to identify factors that put them at risk for adverse outcomes (see Exhibit 1).

The HBHC program aims to take advantage of several opportunities to connect with pregnant women. The majority of screens are administered postpartum, in-hospital, prior to discharge. Additional opportunities such as during registration at the hospital prior to giving birth, or in the community where primary caregivers can fax completed screens to the health unit, are less frequently utilized. The women and children identified as being at risk for adverse events receive a home visit by a public health nurse. During home visits, the nurse assesses parents and families using a risk-screening tool and develops a plan with the family to address these risks. This may involve connecting them to social services and other community supports. The Ontario Ministry of Child and Youth Services (MCYS) allocates funding each year to the boards of health, which govern the province's public health units, specifically targeted to the HBHC program. The organization and management of program components is under the discretion of each public health unit.

Since 2013, Ministry funding of the HBHC program has remained stationary. This funding freeze necessitated changes to the program. At the provincial level, the intended scope of the program shifted from universal to targeted. Initially, the program had been directed at ensuring that all children and families received a home visit. The focus moved toward optimizing screening services. Prenatal and postpartum screening were used to target home visits to high-risk mothers and children who were most in need of those services. At the local level, public health units reduced staff and experimented with their service delivery models. Each health unit delivered services in different ways. Some emphasized prenatal and postpartum screening, ensuring that public health nurses devoted their time to support busy hospital staff. Others relied more on hospital staff to complete prenatal and postpartum screening, focusing on post-discharge follow-up. The funding freeze was operationally equivalent to a funding cut, as it resulted in operating shortfalls for public health units. For example, operating costs increased annually due to collective agreements, which mandated a 3% annual rise in the salaries of program employees.

At King Public Health, a significant proportion of the HBHC program resources were consumed by administering postpartum screens in the hospital, while the waiting list for home visits continued to grow. Philip had called this meeting to discuss changes to program delivery. The goal was to reduce the cost of postpartum screening in order to redirect resources to home visits and to reduce the overall cost of the HBHC services in order to remain within the allocated MCYS budget. With the end of 2015 fast approaching, King Public Health needed to consider implementing changes, if any, by April 1st, the beginning of the 2016 fiscal year. Philip reviewed the numbers with his team in the hopes of better informing their decision. He faced the challenge of addressing funding shortfalls resulting from static funding and rising operating costs.

The province of Ontario accounts for one-third of the approximately 35 million people in Canada. King Public Health is one of 36 public health units in Ontario. The Region of King has 1,384,000 residents in the municipalities of Weston, Keewatin, and Oxford. It is located northeast of the City of Toronto. The size of the population served by King Public Health makes it a mid-sized health unit. In comparison, Toronto Public Health serves 2.8 million people. Smaller health units, like Lambton and Elgin St. Thomas Public Health, serve communities of less than 150,000 residents. During the first decade of the twenty-first century, King Region experienced tremendous growth, which was only partly driven by births. Migrants from other

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

regions and the arrival of new Canadians accounted for the majority of the growth. As the largest city in Canada, Toronto is an attractive destination, but the high cost of real estate within the city boundaries means that people increasingly choose to live in one of the suburban communities of the Greater Toronto Area. Population forecasting suggests that the number of live births in King Region will remain stable for the next few years.

“The budgetary constraints necessitate a change in the way we operate.” Philip added, “Our staff and resources need to be utilized more efficiently. The goal is to modify service delivery while preserving or even enhancing effectiveness. This is a tall order since we also need to cut the overall cost of the HBHC program in order to remain within the MCYS budget. Waiting lists for home visits continue to grow. Praveen, can you tell me how long families are waiting?”

Praveen shuffled through the sheets of paper in front of her. “The average wait time during the 2014 fiscal year was eight weeks.” She looked at the next sheet of paper and said, “This past year, we’ve been looking at wait times of almost 12 weeks.” Praveen looked up and added, “We have been addressing this challenge in different ways. As you know, we make an initial telephone contact. We then perform program triage – the home-visit nurses prioritize contact for families most in need. We follow up with the families just prior to the home visit, to ensure that the home address is the same – to make sure they haven’t moved. The wait list has grown so rapidly, I’ve considered making telephone contact at the six-week point to ensure the family hasn’t moved. Anyway, we’ve been addressing the challenge by attempting to reduce the amount of time the case manager spends with each family. We used to book two home visits per day for each nurse, we now book three home visits per day, paying attention to proximity of course...”

“Just to clarify, the 12-week wait time is for the lower priority triage families?” asked Philip.

“Yes, for the most part. I would say that the triage system means we get to extremely high-risk families within days, so those are families where there is a real suspicion that the newborn will suffer immediate harm. For those extreme cases, we make contact immediately and bring in social services. Of course, those families require many repeat contacts, but I guess that’s a discussion for another day. The vast majority can be considered intermediate risk, and that’s what the 12-week wait time pertains to,” responded Praveen.

“Okay, so how have the nurses responded to the changes?” asked Philip. “It must be difficult to visit three families each day when you’re used to visiting two.”

“It’s difficult to say...” Praveen hesitated. “I think the nurses’ opinions reflect mine. On the one hand, taking a long time to visit the home is damaging to the overall program objectives, so any changes we can implement to reduce wait times are welcome. We don’t want to show up at families’ homes after a new mother has suffered for months with a critical situation or established poor coping mechanisms, and has no knowledge of the community services available.” Praveen paused. “We also don’t want to rush those encounters with families and new mothers when we finally do get the chance to visit them. It’s a complicated situation...”

“Philip, my concern about the HBHC portfolio is that a large proportion of the budget is allocated to screening,” Vanessa Thomas offered. “If we can redirect additional resources to home visits, to free up some staff time to assist with home visits, I think the overall effectiveness of the program would be improved. I think we can work with the hospital partners to ensure their staff complete the screens accurately and then we can allocate more resources to home visits” (see

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

Exhibit 2). Vanessa spoke with the candor of a professional with 25 years of experience in all facets of public health. While some might mistake her usually unsmiling expression for a lack of compassion, Philip understood her reliability and dedication to her job to be her expression of compassion. He appreciated her breadth of knowledge. If she believed that in-hospital postpartum screening could continue with fewer personnel, it was a recommendation he would seriously consider despite his reservations.

“How many screens did we administer last year?” Philip asked.

Praveen Gill looked down at the numbers on the first page in front of her. “In fiscal 2014, there were 8,210 live-births in King Region. We administered 7,553 screens, 5,663 at Kanesatake Health Network and 1,890 at Weston General.” Praveen looked up and continued, “... so we’re at 92% coverage.”

“That is amongst the best coverage in the province,” interjected Vanessa Thomas. “We complete screens on 92% of families within 48 hours of birth. Only two public health units in the province are performing better.”

Praveen added, “Achieving coverage of 92% is remarkable. When you consider the number of births occurring on Friday afternoons and on the weekends, the screens that we miss are the Monday morning screens just outside the 48 hour window that have already been discharged from hospital.” The younger Praveen had been an excellent hire. Balancing professionalism and empathy, she directed the work of nurses who were stretched to the limit with many responsibilities. Somehow, Praveen managed to ensure that the program ran smoothly while making every attempt to address the challenges faced by the nurses.

“I’ve prepared a breakdown of the budget for the program,” said Vanessa (see Exhibit 3).

“Thank you for this,” Philip said. “So we have nine public health nurses allocated full-time to the HBHC program. Was it five you said Praveen that work full-time on home visits?”

“Yes, that’s correct,” affirmed Praveen.

“And so that means four work full-time on screening.” Philip paused for a moment. “Let’s review how the screening is structured.”

Praveen responded, “As you know, King Public Health utilizes the liaison PHNs, or Public Health Nurses, to build capacity at the hospital and to administer the tool when necessary. It is the responsibility of hospital staff to administer the screens, which include the consulting physicians, obstetrics nurses, and trainees. The PHNs are tasked with playing a supportive role. Currently three nurses work at Kanesatake Health Network and one works at Weston General,” Praveen Gill volunteered. “I would say we have roughly one PHN per 1,900 births. Each morning, the PHNs review the screens, finish incomplete screens if necessary, finalize the screens, and bring them back to the health unit for program triage.”

“So the PHN role is quality assurance?” asked Philip.

“Yes. That’s correct,” responded Praveen.

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

“And this is the screening tool...” Philip quickly reviewed the document. It had been some time since he looked at it in depth. “There are 36 questions.” (Ministry of Children and Youth Services, 2012, p. 92.)

“The PHNs also train the hospital staff in how to administer the screening tool,” added Vanessa. “So you can see the PHN role already includes education, and this is what I would like to enhance by changing our care delivery model. I believe that this screening tool is quite sensitive in the hands of a health professional with sufficient training. Currently the PHNs train hospital staff on administering the tool approximately four times each year. If we pull three full-time equivalents (FTEs) from the hospitals, we could then allocate more PHNs to home visits. To offset the loss of the PHNs in the hospital, we would increase the quality and frequency of training, so that we will be able to rely on the hospital staff to complete the screens comprehensively and accurately. Instead of one every four months, we would hold training sessions every two weeks. This way, new hospital staff and trainees would have more opportunities for training.”

“And the plan would be to move one PHN out of HBHC altogether,” said Philip.

“Yes, that would bring us under budget and within the MCYS funding allocation,” Vanessa interjected. Two FTEs would help with home visits and one would be assigned to another area of family health outside of HBHC.

Philip was concerned about the HBHC program being over-budget and he had asked Vanessa to find solutions, but he also wanted to ensure that the overall program goals would not suffer. “How often are the screens incomplete?”

Praveen began to express an opinion that it appeared she had come prepared to share. “Listen, I completely understand any reservations about this proposed change. In the mornings, and particularly Monday morning, after the weekend, the PHNs arrive in the hospital to many incomplete screens. Frequently, they have to scramble to reconnect with staff and patients to fill in the gaps. The hospital staff often cite the issue as time. But, I suspect part of it is new staff being unfamiliar with the tool, and knowing that the liaison PHN is responsible for finalizing the screens.”

“And that can be easily remedied,” said Vanessa.

Praveen continued, “The PHNs frequently revisit completed screens. For instance, they may notice potential inconsistencies such as a single mother who indicated no concern about money. On one hand, it may be a wealthy single mother. On the other hand, it may be that the hospital staff missed subtle cues that the mother was concerned about money but too embarrassed to say so. In that case our liaison PHN will follow up with that mother if she is still in the hospital or flag the screen as high-risk herself.”

“Yes, we know quality is dependent on the skills of the person administering it. The need to be attentive to non-verbal cues will form a significant part of our enhanced training,” said Vanessa.

“What are the most common risk factors?” asked Philip.

Praveen shuffled through the sheets in front of her once again. “Our records for 2014 show that 27% had labour and delivery complications, 20% experienced a previous loss of a pregnancy or

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

baby, 19% implied concerns about the wellbeing of the client by the healthcare professional, 15% showed maternal cigarette smoking during pregnancy to be a risk factor, and 14% were low birth weight babies, less than 4000 grams. Overall, 32% were identified as at risk – some had multiple factors.” Praveen paused “I think these pieces of information are important because they tell us about our intended target population.”

“The data also suggest the healthcare professional role in identifying at risk mothers is significant. Okay, now let’s talk in-depth about what you propose we should do.” Philip directed his statement to Vanessa.

“Under the proposed model, the PHN would act as an enhanced resource for health professionals who administer the tool. The PHN would provide information about the HBHC program and conduct frequent training and refresher sessions. The doctors and nurses in the hospital would administer the screening tool as they currently do, but our liaison would not be responsible for quality assurance.”

“The screenings would be taken on mainly by the professionals at the hospital,” Philip reiterated, speaking slowly. “I see your rationale for suggesting this, and in a way this is what the hospital staff are supposed to do and already do to some extent, but would we be taxing an already taxed system?”

“Philip, there is no denying it. The hospital administration suggested it would be challenging to administer such a long questionnaire, but as you stated, the staff already do this. The incomplete questionnaires during the evenings and weekends are related, at least in part, to staff knowing that the liaison nurse’s role is to complete the screens. When we stress the requirement to complete the screens, provide training and suggestions on how to be sensitive and efficient in completing the screens, I believe that we can stay close to maintaining our coverage levels,” asserted Vanessa. “For example, there are additional processes that could be implemented, to assist with their workflows. Consent for the postpartum screening is obtained around the 36th week of a woman’s pregnancy during her preadmission clinic appointment. This is a window of opportunity for screening that could be taken advantage of. The hospital staff could begin completing the screening document at the time of consent and this would minimize the number of items that would need to be completed postpartum. Most health units of our size employ this model. While we have done our best to maintain this high level of involvement of the liaison nurses in the birthing units, because of the costs we cannot continue to operate this way. Two additional PHNs performing home visits can improve the overall effectiveness of the HBHC program.”

“What would be the impact on other costs? What about the travel budget?” asked Philip.

“I anticipate that the travel budget for postpartum screening would be cut by 50%. By assigning two additional PHNs to home visiting the travel budget for home visiting will increase by 40%. Would you agree with that Praveen?” asked Vanessa.

“Yes, that sounds reasonable to me,” Praveen responded. “I would expect no changes in the supplies and office equipment for screening. We would still provide the same number of forms to the hospitals. For home visits, I expect a 40% increase in the cost of supplies.”

Philip asked, “So what do you think is the worst case scenario in terms of coverage? How much could our coverage levels fall?”

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

"I think at most our coverage levels would fall by 10%," Vanessa offered. "That would put us at the current provincial average of all PHUs."

"Is that acceptable?" Philip asked. "How good are the liaison PHNs at correctly identifying high risk families and how good can the hospital staff be?"

"The sensitivity?" asked Vanessa.

"Yes," responded Philip. "What is the worst case scenario in terms of the sensitivity of detecting high risk families?"

"It's a difficult number to estimate," said Vanessa.

"Okay, let's think this through. Would you say that our liaison PHNs miss high risk mothers?" Philip rephrased.

"I think that's highly unlikely," responded Vanessa. "Let's say that if our liaison PHNs interview a high risk mother, they will identify her 90% of the time."

"We have to consider the sensitivity of screening, much like a diagnostic test sensitivity..." Philip began to write on his notepad. "Out of 7,553 screened, the liaison public health nurses identified 32% of those screened as at risk. They identified 2,417 as at risk and this represents 90% of those truly at risk. If we divide 2,417 by 0.9 we get the number truly at risk... 2,686. Of all women screened, the number truly at risk is 2,686 and the percent truly at risk is 36%." Philip looked up from his notepad. "Do you think the hospital staff would function at the same level?"

"With enhanced training, I would trust that hospital staff would identify high risk mothers 85% of the time," said Vanessa.

"Where would you put that number," Philip asked Praveen.

"I must admit, I would put the number a bit lower," Praveen said. "I'm thinking 80% of the time..."

"Also, let's not forget," Vanessa volunteered, "Community partners also identify high risk women and submit completed screens to the PHU. There are other ways mothers at risk are identified."

Vanessa's support of the model change was motivated by pragmatism and the need to operate within budget. It was clear that the strain of keeping up with the requirements of the home visit program, and the missed opportunities to intervene, were wearing on her. "Two more home-visit PHNs means we can reduce wait times and get to families sooner."

"You're right Vanessa. But we have to consider the possibility that with busy schedules, hospital staff may find it difficult to pick up on subtle cues when asking sensitive questions," added Praveen.

"I know that at this point, remaining with our current model is not an option unless we allocate additional funds to HBHC," Philip said. "The operating costs are soaring, the Ministry hasn't increased funding and so we are left with making the best of this situation." Philip paused before continuing, "When I was the Associate Medical Officer of Health for Lambton Public Health, the

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

unit oversaw screening for approximately 800 live births each year. We employed one liaison screening PHN and employed the screening model we currently use here at King. We shifted resources from our operating budget into the program to supplement the Ministry funding and ensure adequate staffing for postpartum screens. I am willing to consider allocating additional funds to the HBHC program if we believe we cannot maintain high levels of quality, but that would be dependent on the evidence of the impact of the program. I want to be certain that we don't compromise the effectiveness of the whole program, including the postpartum screening component. I appreciate the budgetary constraints, but the time of birth may be the best opportunity to identify families at risk and intervene. Given that the acute care system is already taxed, shifting screening responsibility entirely to this sector would surely reduce coverage and sensitivity. The question is whether we accept the reductions, knowing that we will be improving home visiting."

All in the conference room were silent. Each knew there were no easy answers.

As Philip contemplated King Health Unit's HBHC screening program, he thought about the trade-offs involved in the decision. "I don't want to rely on an educated guess or a gut feeling. Let's evaluate our options systematically..."

**Babies and Budgets: Balancing Costs and
Consequences in Postpartum Screening**

**EXHIBIT 1
Risk Factors Addressed by the Postpartum Screening Tool**

| Economic and Social Risk Factors | Infant Health Risks | Parent Health Risks |
|---|---|---|
| <p>Lack of social support</p> <p>Social, geographic or cultural isolation</p> <p>Low level of education</p> <p>Sole-support parenting</p> <p>Adolescent mothers</p> <p>Low income</p> | <p>Low birth weight</p> <p>Congenital defects and/or syndromes</p> <p>Parent(s) with a physical or development disability</p> | <p>Parent(s) with a psychiatric illness</p> <p>Parent(s) with substance abuse problems</p> <p>Parent(s) with dual diagnosis</p> <p>A history of domestic violence and abuse</p> |

Source: The table is a summary of the risk factors outlined by the Ministry of Health and Long-Term Care, 2001.

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

EXHIBIT 2 Description of HBHC Postpartum Screening Models

The HBHC program follows the Screening Liaison Model, a model that promotes partnerships and collaboration while ensuring a quality screening process is followed.

Current Model

King Public Health employs a high nurse to births ratio in the hospital. The liaison public health nurses (PHNs) are a consistent resource ensuring high coverage and accuracy of postpartum screening.

- Four liaison PHNs, three at Kanesatake Health Network, and one at Weston General, oversee screening for approximately 1,900 births per nurse.
- Liaison PHNs conduct training sessions infrequently, once every four months at each hospital.
- Doctors and nurses who work in the hospital maternity units administer the screening tool, but many screens are incomplete and contain inconsistencies. Due to infrequent training sessions, newer staff are not properly trained.

PHNs spend much of their time following up with women while still in the hospital to fill in missing information and investigate inconsistencies.

Proposed Model

Under the proposed model, the role of the liaison PHN would be to build capacity through enhanced training, ensuring the hospital staff understand the importance of the tool and are attentive to non-verbal communication.

- One liaison PHN would remain at the hospital to conduct more frequent training sessions at Kanesatake Health Network (5,663 births) and Weston General (1,887 births).
- Doctors and nurses who work in the hospital maternity units would continue to administer the screening tool. The goal of more frequent training sessions would be to improve the coverage and accuracy of hospital staff in administering the screening tool in-hospital.
- The liaison PHN would not be responsible for ensuring the completeness and accuracy of every screen. He or she would instead work with the hospital staff to improve completeness and accuracy.
- Two of the PHNs would be redirected to the home visiting component of the HBHC program in order to reduce the wait-time. Another PHN would be redirected to another area of King Public Health to bring the HBHC program under budget and within the MCYS funding allotment.

Source: Author created.

**Babies and Budgets: Balancing Costs and
Consequences in Postpartum Screening**

**EXHIBIT 3
HBHC Program Budget by Fiscal Year (Current Model)**

| | 2015 (actual) | 2016 (estimate) | 2017 (estimate) | 2018 (estimate) |
|---|----------------------------|----------------------------|----------------------------|----------------------------|
| Revenues | | | | |
| MCYS Funding | \$837,000 | \$837,000 | \$837,000 | \$837,000 |
| Expenditures | | | | |
| Salaries & Benefits – Home Visits | \$447,500.00 | \$460,925.00 | \$474,752.75 | \$488,995.33 |
| Travel – Home Visits | \$12,250.00 | \$12,495.00 | \$12,744.90 | \$12,999.80 |
| Supplies & Office Equipment - Home Visits | \$4,250.00 | \$4,335.00 | \$4,421.70 | \$4,510.13 |
| <i>Subtotal – Home Visits</i> | <i>\$464,000.00</i> | <i>\$477,755.00</i> | <i>\$491,919.35</i> | <i>\$506,505.26</i> |
| Salaries & Benefits – Hospital-Based Screening | \$358,000.00 | \$368,740.00 | \$379,802.20 | \$391,196.27 |
| Travel – Hospital-Based Screening | \$2,750.00 | \$2,805.00 | \$2,861.10 | \$2,918.32 |
| Supplies & Office Equipment – Hospital-Based Screening | \$1,750.00 | \$1,785.00 | \$1,820.70 | \$1,857.11 |
| <i>Subtotal – Hospital-Based Screening</i> | <i>\$362,500.00</i> | <i>\$373,330.00</i> | <i>\$384,484.00</i> | <i>\$395,971.70</i> |
| Total Expenditures | \$826,500.00 | \$851,085.00 | \$876,403.35 | \$902,476.97 |
| Net | \$10,500.00 | (\$14,085.00) | (\$39,403.35) | (\$65,476.97) |

Notes:

1. This budget represents the entire HBHC Program (Hospital-Based Screening + Home Visiting).
2. There are nine full-time public health nurses (PHNs) staffing the HBHC program and four of these are allocated to the hospital-based screening portion of the program. In 2015, each PHN salary was \$89,500 (which includes 25% benefits).
3. Salaries are projected to grow at 3% per annum. Cost of supplies and travel costs are expected to grow at 2% per annum. Ministry funding is expected to be frozen at 2015 levels until 2018.

Source: Author created.

**Babies and Budgets: Balancing Costs and
Consequences in Postpartum Screening**

**Worksheet 1
HBHC Program Budget by Fiscal Year (Proposed Model)**

| | 2015 (actual) | 2016 (estimate) | 2017 (estimate) | 2018 (estimate) |
|---|----------------------------|----------------------------|----------------------------|----------------------------|
| Revenues | | | | |
| MCYS Funding | \$837,000 | \$837,000 | \$837,000 | \$837,000 |
| Expenditures | | | | |
| Salaries & Benefits – Home Visits | \$447,500.00 | | | |
| Travel – Home Visits | \$12,250.00 | | | |
| Supplies & Office Equipment – Home Visits | \$4,250.00 | | | |
| <i>Subtotal – Home Visits</i> | <i>\$464,000.00</i> | | | |
| Salaries & Benefits – Hospital-Based Screening | \$358,000.00 | | | |
| Travel – Hospital-Based Screening | \$2,750.00 | | | |
| Supplies & Office Equipment – Hospital-Based Screening | \$1,750.00 | | | |
| <i>Subtotal – Hospital-Based Screening</i> | <i>\$362,500.00</i> | | | |
| Total Expenditures | \$826,500.00 | | | |
| Net | \$10,500.00 | | | |

Notes:

1. This budget represents the entire HBHC Program (Screening + Home Visiting).
2. One PHN would be removed from the HBHC program and assigned to another area of the health unit. This would leave eight full-time PHNs staffing the HBHC program. One PHN would remain at the hospitals and would enhance the training of hospital staff to deliver screens. Two additional PHNs would conduct home visits for a total of seven PHNs responsible for home visits. In 2015, each PHN salary was \$89,500 (which includes 25% benefits).
3. Travel costs, supplies, and office equipment for home visits would be expected to increase by 40%. Travel costs for hospital-based screening would be expected to decrease by 50%.
4. Salaries are projected to grow at 3% per annum. Costs of travel and supplies are expected to grow at 2% per annum. Ministry funding is expected to be frozen at 2015 levels until 2018.

Source: Author created.

**Babies and Budgets: Balancing Costs and
Consequences in Postpartum Screening**

Worksheet 2

Worksheet of Forecasted Costs and Consequences for Postpartum Screening in 2016*

| | Current Model | Proposed Model | Difference (Proposed – Current) |
|---|----------------------|-----------------------|--|
| Consequences | | | |
| Number of births in King Region each year (based on historical data) | 8,210 | 8,210 | |
| Coverage (i.e. percentage screened within 48 hours of birth) | 92% | | |
| Number screened | 7,553 | | |
| Percent truly at risk | 36% | 36% | |
| Number truly at risk amongst the number screened | 2719 | | |
| Sensitivity of the screen (percent at risk that are correctly identified) | 90% | | |
| Number correctly identified at risk | 2447 | | |
| | | | |
| Cost of home visits | \$477,755.00 | | |
| Cost of hospital-based screening | \$373,330.00 | | |
| Cost of the program | \$851,085.00 | | |

*It is recommended that rounding to the nearest ones value be conducted at each step.

Source: Author created.

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

REFERENCES

1. Ministry of Children and Youth Services. (2012). *Healthy babies healthy children guidance document*. Retrieved from http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/guidance/hbhc_gd.pdf
2. Ministry of Health and Long-Term Care. (2001). *Implementation guidelines for the healthy babies, healthy children program – Phase 1*. Retrieved from http://www.health.gov.on.ca/english/providers/pub/child/hbabies/implem_phase1.html#332

INSTRUCTOR GUIDANCE

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

*Ava John-Baptiste, PhD (Assistant Professor, Western University)
Yoshith Perera, MD, MPH (MPH Class of 2014)
Sudit Ranade MD MPH MBA CCFP FRCPC
(Medical Officer of Health, County of Lambton | Lambton Public Health)*

BACKGROUND

Dr. Philip Singe, the Medical Officer of Health at the King Public Health Unit, is in a meeting with Praveen Gill, manager of the Healthy Babies, Healthy Children (HBHC) program, and Vanessa Thomas, the director of the Family Health portfolio. The group is discussing options for delivering postpartum screening services under the provincially funded HBHC program. While program costs have increased steadily, funding from the provincial Ministry responsible for oversight of HBHC has been stagnant. The group must decide whether or not to cut costs by reducing the number of staff responsible for screening. Faced with the challenge of maintaining the effectiveness of screening services, the group weighs each option. Using expert opinion and historical information, the team must forecast costs and consequences to compare options systematically. The case includes worksheets for budgeting and cost-consequence analysis. Instructors can obtain a copy of the answer key from the MPH Program Office.

OBJECTIVES

1. Understand the financial challenges posed by inflationary pressures and stagnant funding.
2. Use cost-consequence analysis to articulate the trade-offs between a more intensive and a less intensive program.
3. Develop a budget and identify opportunity costs that are not reflected in the budget.
4. Informed by historical data and expert opinion, forecast health consequences and resource use.
5. Perform a cost-consequence analysis from the perspective of the public health unit.
6. Conduct a sensitivity analysis, varying key input parameters in order to appraise the effect of uncertainty on analysis results.

DISCUSSION QUESTIONS

1. Should the public health unit continue hospital-based postpartum screening at the same level of intensity?
2. Are there additional factors that are not referenced in the case that may influence this decision?
3. How would the hospital sector be influenced if the public health unit reduced the number of staff in the hospital?
4. What additional cost items would be incorporated in the analysis if it were conducted from the perspective of the Province of Ontario?
5. Is there a threshold level of effectiveness, below which it would be unethical to remove resources from the postpartum screening program?
6. Using a cost-effectiveness plane, plot the cost savings and the reduction in the number correctly identified at risk.

Babies and Budgets: Balancing Costs and Consequences in Postpartum Screening

KEYWORDS

Economic evaluation; cost-effectiveness analysis; cost-consequence analysis; decision analysis; maternal and child health; public health unit.