Ontario Centre of Excellence
for Child and Youth
Mental Health

Bringing People and Knowledge Together to Strengthen Care.

Adding it all up:
A value-based planning process for child and youth mental health services

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Table of contents

Executive summary

This paper was facilitated by the Ontario Centre of Excellence for Child and Youth Mental Health (the Centre) in response to a request from lead agency leaders in 2014. It was developed in collaboration with a multi-disciplinary team with expertise in health services research. This work aims to provide a link between the research evidence and a policy landscape that demands the efficient delivery of effective services.

This report proposes an answer to the question posed by the Ministry of Children and Youth Services (MCYS) and lead agencies: *How can lead agencies best allocate their resources across the seven core services?* We recommend a collaborative decision-making process whereby MCYS and lead agencies clarify the value and cost of services when determining allocations.

This approach was developed following an international jurisdictional scan and a review of decision-making literature on the allocation of organizational resources. Findings revealed no *one-size-fits-all* solution for how to best allocate resources across health services. This review highlighted the complexity of this question given diverse mental health needs, a lack of data to support decision-making and the likelihood that allocation needs change over time.

This process has three steps:

Step 1: *Gather data about the cost of services*: Identify all MCYS programs offered within a service area, categorized by service type and core service category. For each service type, estimate how many clients are served each year, the total cost of providing each program and the cost per client.

Step 2: *Determine the value of services*: To determine the value of services, we propose that agencies should score the services on several dimensions of value. Value is then calculated as a weighted sum of the dimensions. We discuss possible choices for the dimensions of value, including benefit, need, unmet demands and equity.

Step 3: *Propose new service allocations*. Step 1 and Step 2 will enable agencies to compare services on both value and cost. We propose several ways to display this information and show how the displays can suggest changes in allocations that can increase the total value of the services delivered by the agency, holding the total budget constant.

In summary, we propose a process for allocation decisions that help agencies evaluate their services. By making decisions that are informed by both value and cost, agencies can increase the benefit they deliver to their clients, even when budgets are fixed.

Finally, we propose steps that MCYS could take to pilot a value-based planning process, with the Centre's facilitation for the implementation process. We also discuss how it could become more data-driven over time, becoming a cornerstone of a learning community for MCYS and the lead agencies.

Introduction

The Ministry of Children and Youth Services (MCYS) launched the *Moving on Mental Health* system transformation effort (MCYS, 2015). Through *Moving on Mental Health*, MCYS intends to improve the child and youth mental health system in Ontario making it easier for children, youth and families to find necessary services across a continuum of care. Lead agencies across 33 service areas are now required to deliver a suite of core services such as brief services, targeted prevention, family support and counselling, together with other providers in their service area.

In 2014, the first 14 lead agencies were announced by MCYS using a phased approach to the implementation of system transformation. Lead agency leaders at that time initiated a request to the Ontario Centre of Excellence for Child and Youth Mental Health (the Centre) for evidence from the literature to guide decision-making on allocation of core services. This report is a collaborative effort with the Centre and a multi-disciplinary team with expertise in health services research. This work aims to provide a link between the research evidence and a policy landscape that demands the efficient delivery of effective services.

This report proposes an answer to the question posed by MCYS and lead agencies: *How can lead agencies best allocate their resources across the seven core services?* This is an extraordinarily challenging problem. To see how, let's imagine that the lead agency for a service area is considering whether to increase the funding for support services to parents of children with severe behavioural health problems. This decision is challenging because the problem is complex in two ways.

The first complexity is that there are many different factors that we have to consider when evaluating services. For example, consider support for parents. Factors we need to consider include: How much does it cost to deliver the service? How severely stressed are these parents? Do parents actually benefit from the services, and if so, how much will that benefit their children? Is there evidence for those benefits, and if so how good is it? How many parents are there who actually want this service? If the service is currently available, how long is the waiting list? Each of these questions can be difficult to answer. And supposing we had the answers, what do we do next? Suppose that parent support services currently have a long waiting list, but they only work moderately well. Does that make them more or less important to fund than if the services worked really well, but only had a short waiting list? In short, *how do we evaluate services when we have to think about multiple factors*?

The second complexity is that with a fixed budget, a decision to increase funding for parent support services means that at least one other service will have decreased funding. So we can't just consider one service at a time. Every choice to increase a service implies a set of choices about every other service.

Responding to these complexities, we recommend a collaborative decision-making process whereby a lead agency can clarify the value and cost of services to determine allocations. We also believe that over time, this process would allow the lead agencies of different service areas to align their allocation decisions with each other, while taking account of the factors that are unique to that service area.

Our proposed process is not simple. There is no formula for determining the allocation of services that can overcome these complexities. We cannot avoid thinking about multiple factors pertaining to each service. We cannot avoid thinking about the trade-off in deciding to fund one service versus another. We have no illusions that our recommended process makes these choices easy, because the choices are intrinsically hard. Rather our goal was to make the decision-making about allocations as easy as possible, while being responsive to the challenges and complexities.

What we learned from other jurisdictions

In writing this report, we reviewed literature on child services planning in several jurisdictions in Canada and the world. From this we learned a great deal about the missions and goals of these organizations, and what they value in choosing services.

Australia. The Australian National Mental Health Strategy highlights *access to the right care at the right time* as a value of their system. The Australians seek to integrate specialized mental health services into the larger health system, and to avoid compartmentalized care. Other goals include detection/intervention, increased equity in access to other health services and provision of services that are closer to and respectful of an individual's community and culture (Commonwealth of Australia, 2009).

Scotland. Scotland notes the importance of addressing mental health service indicators of children and youth at a local level. A briefing paper generated by NHS Scotland recommends that indicators be established based on what is important to local children and youth, and that indicator definitions should match the national mental health indicator set to ensure that results are comparable across jurisdictions (Parkinson, 2014).

Ireland. In 2010, Ireland commissioned a report from the Expert Group on Resource Allocation and Financing in the Health Sector, asking for recommendations to improve their allocation of health care resources, which includes mental health services. The Expert Group recommended a health care resource allocation system that prioritizes the following guiding principles (Department of Health and Children Ireland, 2014):

1. transparent resource allocation based on population health need
2. local implementation of jurisdiction-wide priorities based on clinical accountability and governance standards established at the jurisdiction level
3. the delivery of safe, sustainable, cost effective, evidence-based care in the most appropriate setting, whether public or private
4. the system-wide alignment of financial incentives for users and providers, in a manner that is in line with jurisdictionally determined priorities and promotes health and well-being

5. methods of financing health care that are as effective and equitable as possible
6. all aspects of the health-care system as sustainable as possible

New Jersey. Between 1999 and 2006, New Jersey implemented a state-wide reform of its children's behavioural services. The new system delivered a set of core services to designated service areas, with services tiered according to levels of need. The state created a uniform screening/assessment protocol, standardized nomenclature and assessment tools, increased monitoring and measuring of outcomes, a single point of access to services and a new financing structure. The reformed system was guided by the following principles: *individual choice and access to services, services meeting client needs, service integration and smooth transitions, culturally competent care, least restrictive service environments and encouraged family participation* (Florida Mental Health Institute, 2006).

What we learned from jurisdictions. Different jurisdictions highlight diverse objectives in discussing how they prioritize different services. What we did not find in our review of these jurisdictions was information about systematic strategies that jurisdictions may use to make allocation decisions in light of their values. In light of the complexities of the services allocation problem, this should not be a great surprise. Finding a systematic approach to allocating resources to services appears to be an unsolved problem in children and youth services.

What we learned about decision-making processes

When we failed to find solutions to the allocation problem in other jurisdictions, we looked in other literatures – chiefly in business, medicine (Dixon et al., 2011) and education (BenDavid-Hadar & Ziderman, 2010) – that describe systematic strategies whereby organizations can allocate resources across projects (business) or schools (education). For example, a business may have a host of possible research and development projects to develop new products – how should it allocate capital funds across these projects, while a school district may seek a procedure for allocating funds across different schools.

This literature presented several processes whereby organizations allocated resources across different purposes (Guindo et al., 2012). These organizations designed these processes to optimize many goals, including equity (BenDavid-Hadar & Ziderman, 2010; Diderichsen, 2004), effectiveness (Hutubessy, Chisholm, Edejer, & WHO-CHOICE, 2003; Mitton & Donaldson, 2004) and student/client need (Bardsley & Dixon, 2011; Kephart & Asada, 2009; Pearson, 2002; Ross & Levacic, 1999). The contribution of this literature was to suggest procedures whereby organizations could tackle the complexities of resource allocation. We were particularly impressed with the decision-making processes described by Phillips and Bana e Costa (Phillips & Bana e Costa, 2007) and reviewed by Mitton and Donaldson (Mitton & Donaldson, 2004).

In this report, we present a process for decision-making about allocating resources across services that combines ideas about the business and educational decision-making literature with the concerns and goals of the child services world.

Value-based planning

We propose value-based planning process to answer the question posed to MCYS by lead agencies: *How can we best allocate resources across the seven core service categories in each service area?* By *best allocate*, we take it as given that the agency has a fixed set of resources – a budget constraint – and seeks to do its best within that limit.

This is an exceptionally difficult task because of the need to consider many factors at once. Our goal is to *simplify* this complex decision-making process by breaking it into several steps. At each step, there are strategies that lead agencies can use to think about a specific aspect of the problem. We provide tools for organizing thoughts and capturing insights about the consequences of changes in allocations.

This process-oriented approach provides lead agencies with both structure and flexibility in determining how to allocate MCYS funding across the seven core service categories. The approach encourages lead agencies' ongoing reevaluation of their funding allocations. It also provides opportunities for input from agency clients and other stakeholders. This value-based allocation planning approach promotes community collaboration, funding accountability and transparent decision-making.

Keep in mind that while we will encourage the use of data and evidence, we are not are proposing an algorithm for calculating an optimal allocation. Rather, we are recommending a *process* whereby an agency *can achieve consensus about how to make things better*.

Overview: Decision-making process

We are proposing a *process* for determining the allocation of MCYS resources across the seven core service categories. This value-based planning process involves three steps:

Step 1: Gather data about the costs of services.
Step 2: Determine the value of the services. By *value* we mean everything about a service that makes it better, other than cost.
Step 3: Propose a new services allocation based on cost and value. For example, the agency can decide to improve things by moving to an allocation of services that delivers more value for the same cost. Review the allocation and revise it, going back as necessary to step 2.

We will use fictitious data for a lead agency to illustrate this process. Figure 1 presents the core services allocation of the agency. We will present the value-based planning process by discussing how this agency arrived at a proposed set of changes to this allocation. Software tools can be developed to allow agencies to easily present allocations in this format.

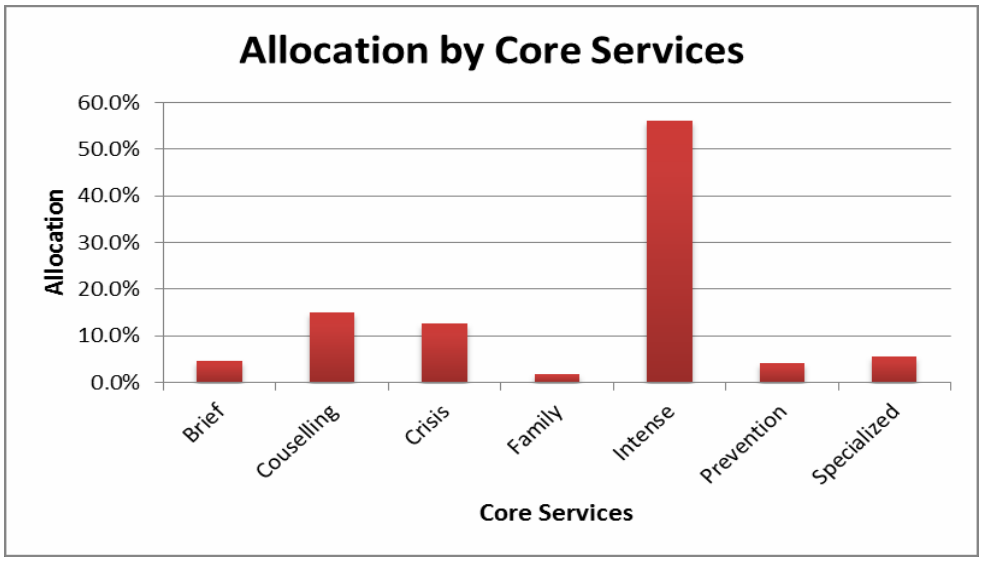

FIGURE 1. CURRENT ALLOCATION BY LEAD AGENCY

Step 1: Gather data about services

Overview

Step 1 has two tasks:

A. Identify specific services and programs that comprise each core services category.
B. Estimate how many clients are served each year by the service, the total cost of providing the service and the cost / client.

A. Identify services

The first task is for the agency to identify the specific services that comprise each category. By *specific services* we mean the subcategories of services within the core services defined by MCYS. Figure 2 illustrates what we mean. The core service category Targeted Prevention (hereafter, Prevention) comprises several subcategories we call specific services such as school-based prevention programs (P_1), parenting programs (P_2) and Suicide Prevention (P_3). Any given agency might have one or more programs (e.g. a contractor) that deliver these services.

It is our understanding that MCYS is developing a standard nomenclature for services. This will be critical for the decision-making process proposed here. These definitions will be essential for organizing the data about the cost and value of specific services in the value-based planning process, and for standardizing reporting of costs across the province.

The value-based planning process considers the allocation problem at both the core service and the specific services levels.

The core services level is important because it helps clarify the overall programmatic thrust of the agency. It is also useful to look at the specific services that comprise each core service.

For example, the evaluation literature describes the benefit of a parenting program, rather than a category like Targeted Prevention. We suspect that it would not be useful to spend too much time thinking about the allocation problem at the program level as there is too much detail.

Figure 3 is a redrawing of Figure 1 in a way that illustrates how the core services and specific services perspectives work together. Again, each column represents the allocation to a core service. The colors within the column represent individual services, such as the three types of prevention programs identified in Figure 2. As can be seen, one can easily get from allocations by services to allocations by core services by just summing up the allocations to the specific services within each core service.

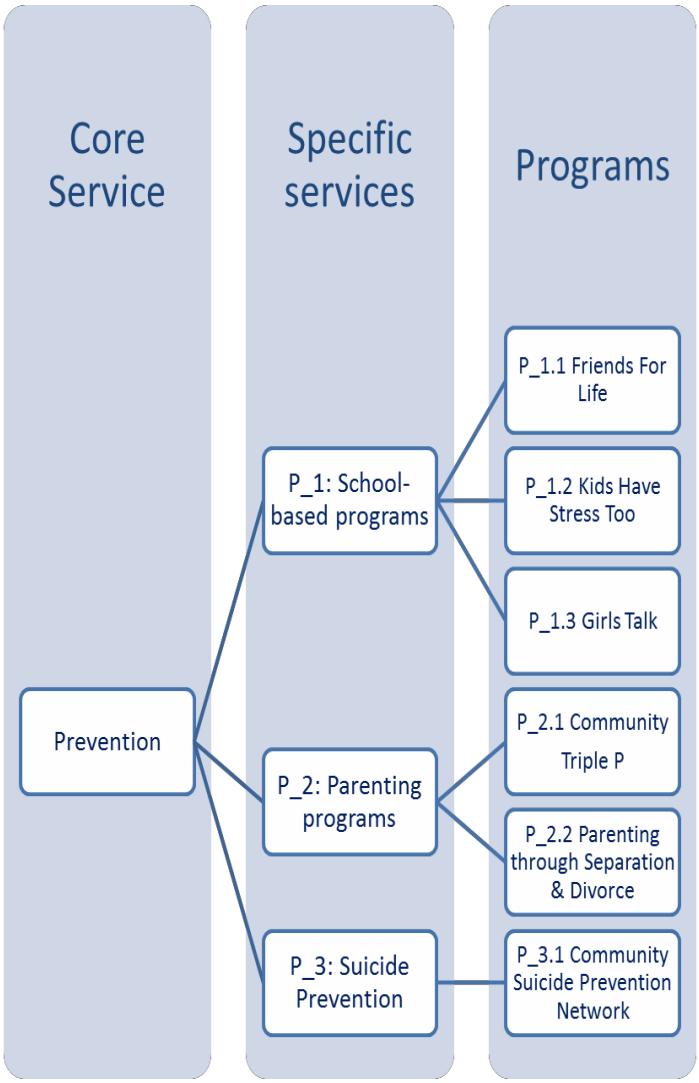

FIGURE 2. CORE SERVICES, SPECIFIC SERVICES AND PROGRAMS

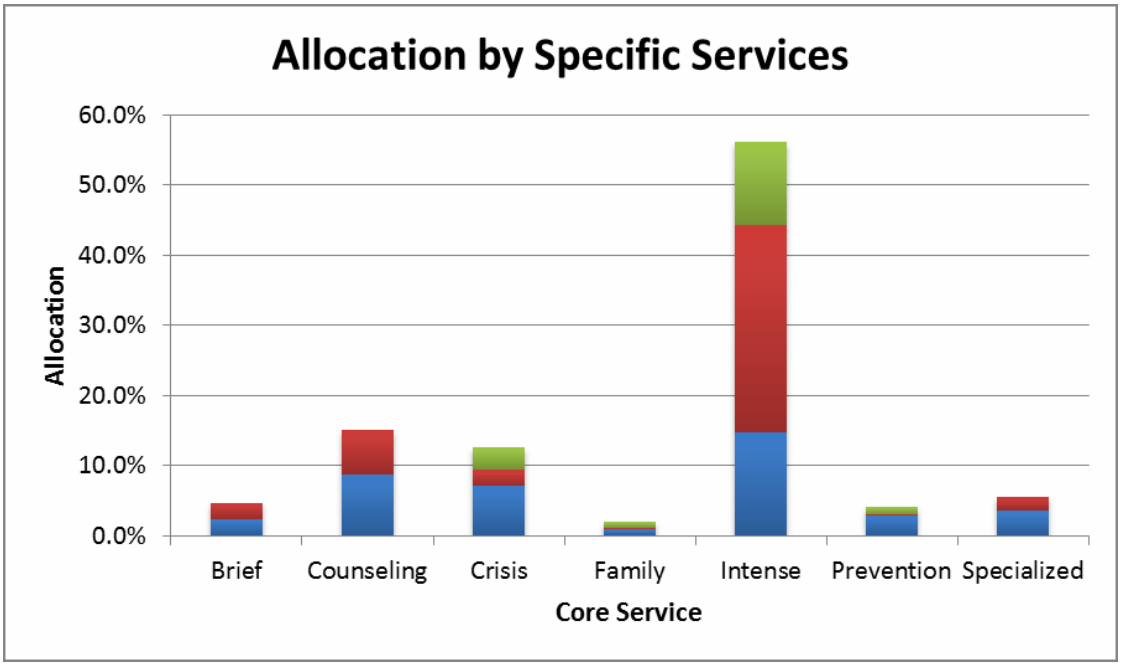

FIGURE 3. ALLOCATION BY SPECIFIC SERVICES.

B. Estimate costs

Having determined the list of specific services offered by the agency, the next task is to collect cost data on those services, including the cost/client, the number of clients served and the total cost of providing the service.

In our example agency, these data are collected in Table 1.

Core	Service	Cost / Client	Clients Served	Total Cost	Allocation
Brief	B_1	$33.41	1345	$44,936	2.4%
	B_2	$65.51	675	$44,219	2.3%
Counseling	C_1	$450.00	369	$166,050	8.7%
	C_2	$900.00	135	$121,500	6.4%
Crisis	Cr_1	$175.25	764	$133,891	7.0%
…	…	…	…	…	
TOTAL				$1,903,620	100%

TABLE 1. COST DATA FOR EXAMPLE AGENCY. COST/CLIENT ENTRIES ARE TAKEN FROM WHAT US MEDICARE PAYS FOR SIMILAR SERVICES.

In the last column, the Allocation for specific service B_1 is:

$$\text{Allocation}(B_1) = \frac{\text{Total Cost } (B_1)}{\text{Total Cost}} = \frac{\$44{,}936}{\$1{,}903{,}620} = 2.4\%.$$

These allocations are graphed in Figure 3.

Step 2: Determining the value of services

Overview

Having collected data on costs, the next step is to determine the value of each service. By value, we mean *the agency's judgment* of the benefit that the service provides for a client. We are not supposing that it is possible to make an exact determination of the value of services. But it is possible to make judgments about the relative value of different services, and that clarifying these judgments is important in making decisions about how to allocate resources to different classes of services.

Here are the four tasks in determining the value of services.

A. **Choose the dimensions** that should be considered in evaluating programs/services.
B. **Rate each service** on each of the chosen dimensions.
C. **Decide how much weight** should be placed on each dimension in the overall evaluation of services.
D. **Calculate the value of each service:** Calculate the total value score of all services and review the results and revise as necessary.

A. Choose the dimensions of value

The value of a service for a client most likely depends on several dimensions (or factors). Here are some dimensions (there are more) that are frequently discussed in the literature:

- **Benefit:** How much benefit will a client and/or family derive from receiving the service? Benefit compares the well-being of a client after receiving the service to her well-being before the service. Or, in comparing the Benefit of two services, imagine that two similar people received them: which service produced a greater change?
- **Need:** Thinking about the typical client and/or family who uses this service, how great is his or her need? Whereas Benefit looks at the change effected by the service, Need addresses the state of a typical client *before* he or she receives the service.
- **Demand:** How many clients and/or families want the service, but are currently unserved? Whereas Need asks how badly off the typical person is before they get services, Demand asks how many people need the service but cannot get it.

It is important that cost *not* be a factor in thinking about value. We are frequently deceived by the idea that more costly things are more valuable, or conversely that something is a wise choice because it is cheaper. But if we cannot determine value independent of cost, we cannot make a rational choice about how best to spend our resources.

Similarly, although everyone believes that evaluation of services should be evidence-based, it is unfortunately true that we do not have sufficient high-quality evidence to base ratings of value solely on the scientific literature.

Who should choose these dimensions? One option is to have each agency reflect on what it believes is important and choose the dimensions that they believe matter most in their community. *We recommend that lead agencies and MCYS choose and define the dimensions in consultation with local stakeholders, including families and clients*. This has the advantage of saving agencies time, and it would make the value data more comparable across the province.

In the example, we assume that benefit, need, and demand have been chosen as the dimensions of value.

What about Equity? Equity concerns disparities between groups in access to a service or in the quality of service, in which one group suffers from a social disadvantage. It is critical to ensure that there is equity in service provision among language groups, among groups defined by family or marital status, and along many other factors.

Equity concerns the distribution of value, but it is not itself a component dimension of value. Because equity measurement is about distribution of value, rather than the nature of value itself, and because there are so many possible forms of inequity, it does not make sense to try to measure equity through a single scale. Instead, we should develop a survey that asks respondents to report concerns about possible inequities in services.

B. Rating the services of the dimensions

The next task is to rate each service on each dimension. For example, on a scale of 0 to 100, how effective is youth suicide prevention for a client? How effective is cognitive behavior therapy for depression for a client? These are hard questions, but it seems clear that with everything else being equal, we think that resources should be allocated to more effective services. Therefore, getting clear about our judgments concerning the relative benefit of different services is a critical step in making an allocation decision.

Let's pause to ask why an agency should rate the value of its services. Can't benefit, for example, simply be determined from the scientific literature? There are at least three reasons why rating by the agency is essential. First, many services have only a limited evidence base. Second, even if there is a strong literature on a service, it is not clear that the services delivered in the agency's community work as well as those in the literature. Therefore the agency may be a better judge of the actual value of a local service. Finally, the scientific literature focuses on effectiveness. Information about other dimensions, such as need or demand, is local.

Core	Service	Benefit	Need	Unmet Demand
Brief	B_1	25	38	55
	B_2	12	32	75
Counseling	C_1	12	41	25
	C_2	15	68	30
Crisis	Cr_1	52	65	15
…	…	…	…	…

TABLE 2. VALUE RATING DATA.

Who should be rating the services? This is an important, but difficult choice. On the one hand, there is likely great value in having a wide and diverse set of stakeholders contribute to the rating process, including not only the lead agency leadership, but also clients and family members. Having representation from all stakeholders will likely both improve the quality of the ratings and increase buy-in for the results of the rating process.

On the other hand, engaging a large group in the rating process may magnify the effort. It might be problematic to have providers rate their own services, or influence the rating of those services.

Further discussion with MCYS and Lead Agencies will be required to clarify this point. In addition, there is a literature on how ratings can best be elicited from groups. Through consultation with stakeholders and a review of the literature, recommendations can be generated about how best to constitute the group that will carry out the rating process.

Similarly, there are many options for how agencies can gather rating data on dimensions such as benefit or need. For example: agency members could rank each specific service on a dimension. A software tool could be developed that would use well-established methods to combine the rankings by group members into an overall score for the effectiveness of the services. Another option is to give agency members sets of pairs of services (e.g. social skills training and CBT), and ask them to choose the member of the pair that is more effective. Again, there are standard methods for converting sets of paired comparison choices into ratings.

We recognize that the effort required to generate ratings of the specific services on the dimensions is a potential obstacle for the value-based planning process. It is beyond the scope of this report to review the literature on the strengths and limitations of alternative procedures for eliciting judgments about the dimensions of value. (That review, however, could readily be carried out). Moreover, the authors believe that the choice of rating procedures will depend on how many specific services need to be rated, and who will be doing the ratings. These issues will need to be clarified in future discussions. Most importantly, rating procedures will need to be carefully tested in pilot studies of value-based planning process

C. Calculating the value scores

Once we have rated the specific services on the dimensions of value, we need to combine those scores into an overall value score. The simplest way to do this is to calculate value as a weighted sum of the dimension scores. In our example, this is:

$$\text{Value} = W_E \times \text{Effectiveness} + W_N \times \text{Need} + W_D \times \text{Demand},$$

where

$$W_E + W_N + W_D = 100\%.$$

Dimension	Weight
Benefit	50%
Need	25%
Unmet Demand	25%

TABLE 3. EXAMPLE WEIGHTS.

The weights are chosen to reflect the relative importance of the chosen dimensions. Table 3 displays a set of weights that gives benefit half the weight and splits the rest equally between need and demand.

The weights are then used to calculate the value score for each service. That is, value is now calculated as

$$\text{Value} = 50\% \times \text{Effectiveness} + 25\% \times \text{Need} + 25\% \times \text{Demand}.$$

So, for example, the value of service B_1 is:

$$\text{Value}(B_1) = 50\% \times 25 + 25\% \times 38 + 25\% \times 55 = 38.75\ .$$

The value-based planning process will include a procedure so that agencies can specify these weights.

Table 4 presents the benefit data, the need data and the value scores for the example agency. Clearly, the agency thinks that the least effective services – meaning the least benefit to clients -- are in the area of prevention. This makes sense: A prevention message typically has a smaller effect on someone who receives it rather than actual treatment.

Similarly, the agency thinks that the clients who receive prevention messages have less severe need than the clients receiving other services. Again, this makes sense: the targets of prevention messages include large number of persons who have low current levels of services need. The services that serve clients with the highest needs are the intensive services, crisis services and specialized assessments.

The value rankings reflect the benefit and need rankings, and again prioritize intensive and specialized services over preventive services. This is consistent with how the agency's current allocation, as shown back in Figure 1.

Ranking by Benefit			Ranking by Need			Ranking by Value		
Core	Service	Benefit	Core	Service	Need	Core	Service	Value
Intense	IT2	71	Intense	IT3	98	Intense	IT2	81.5
Crisis	CS3	65	Intense	IT2	92	Crisis	CS3	73.5
Family	FC2	63	Intense	IT1	87	Intense	IT3	71.5
Crisis	CS2	61	Specialized	S1	85	Crisis	CS2	68.5
Crisis	CS1	52	Crisis	CS3	82	Specialized	S1	63.5
Specialized	S2	50	Crisis	CS2	76	Specialized	S2	62.5
Family	FC1	45	Specialized	S2	75	Family	FC2	59.5
Intense	IT3	45	Counseling	C2	68	Intense	IT1	59.5
Specialized	S1	42	Crisis	CS1	65	Crisis	CS1	58.5
Intense	IT1	32	Family	FC2	56	Counseling	C2	41.5
Brief	BS1	25	Family	FC3	44	Family	FC1	41
Counseling	C2	15	Counseling	C1	41	Brief	BS1	31.5
Brief	BS2	12	Brief	BS1	38	Family	FC3	28
Counseling	C1	12	Family	FC1	37	Counseling	C1	26.5
Family	FC3	12	Brief	BS2	32	Brief	BS2	22
Prevention	P1	3	Prevention	P1	15	Prevention	P1	9
Prevention	P3	2	Prevention	P3	10	Prevention	P3	6
Prevention	P2	1	Prevention	P2	5	Prevention	P2	3

TABLE 4. ALTERNATIVE RANKINGS OF SERVICES.

Step 3: Choose new allocation based on cost and value

The final step is to determine the new allocation. The agency will consider this by looking at the current allocation at both the core services and the specific services levels.

Examining the core services allocation

Looking at their current core services allocation, the agency might find several reasons for considering possible changes in how resources are allocated. For example, there might be policy guidance from the Ministry emphasizing prevention. Or, as shown in Figure 4, the agency might compare its current allocation against the province-wide allocation of services (calculated from MCYS data). The Figure shows that across the province, other agencies are allocating less tointensive services and more to almost every other category of services when compared to this agency. This

comparison may prompt the agency to examine their spending on intensive services more closely.

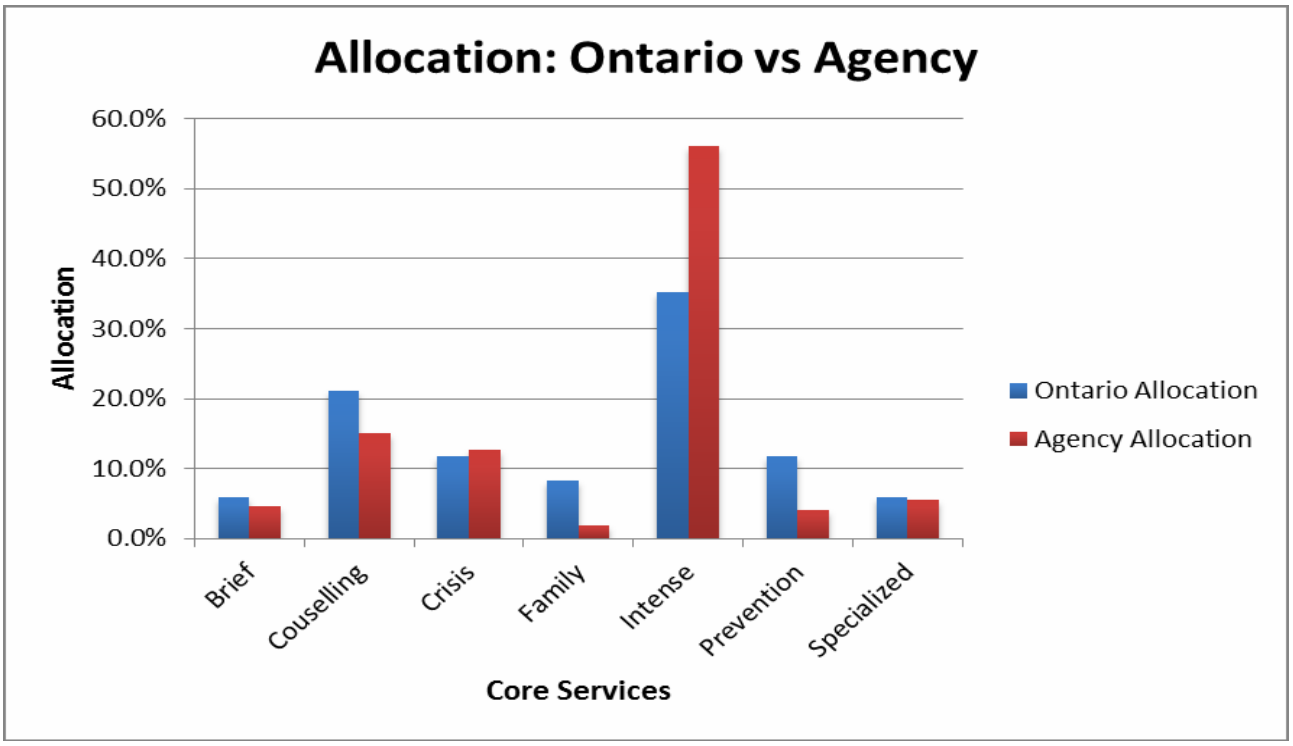

FIGURE 4. COMPARISON: CURRENT AGENCY ALLOCATION AND PROVINCE-WIDE ALLOCATION.

Examining the specific services allocation

The agency also uses the cost and value data to review allocations at the specific services level. Our goal is to move the allocation toward the best mix of services given the agency's budget. To do that, we must consider both the value and the cost of services. Figure 5 plots the value of each service to a client against its cost (on a logarithmic scale), with the size of the allocation shown as a circle.

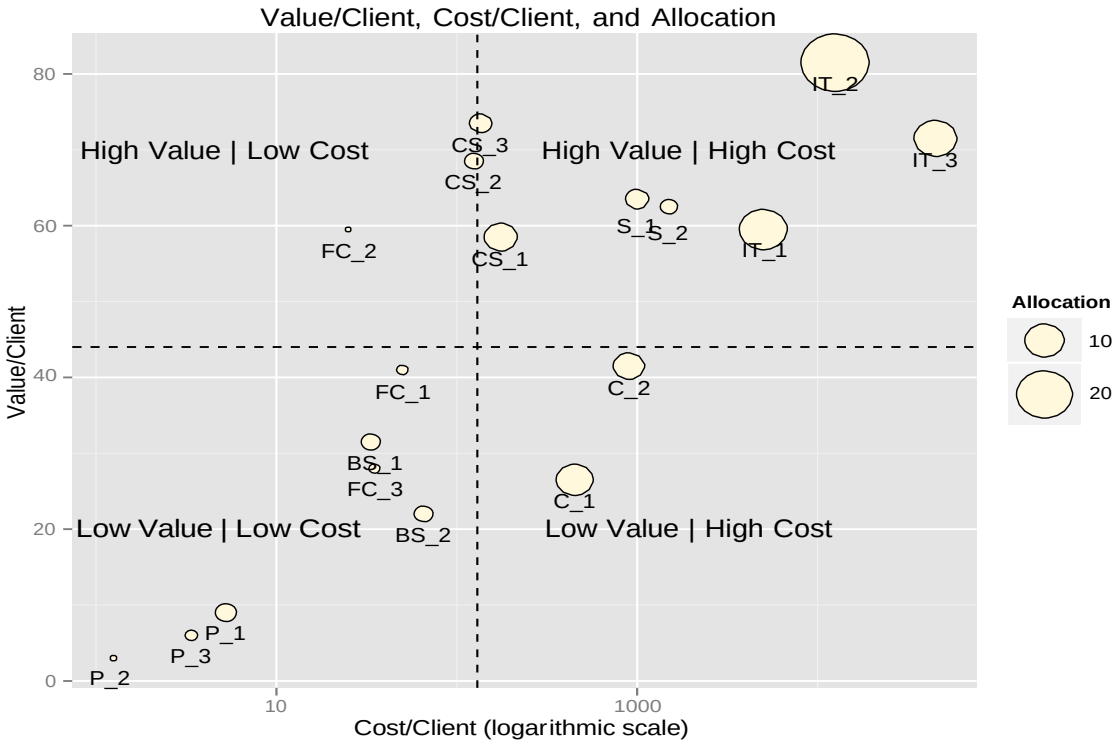

FIGURE 5. VALUE, COST, AND ALLOCATION OF SERVICES.

Figure 5 plots three items of information about each service. For example, P_1, P_2, and P_3 are the three specific prevention services. The horizontal axis is the cost/client of the service (shown on a log scale because of the vast range in costs: $5 to $45,000 per client). The vertical axis is the value of the service as determined by the agency's ratings. Finally, the area of each circle is the size of the current allocation to each service.

Figure 5 is divided into four quadrants. The vertical dashed line is the median cost per client of the specific services and the horizontal line is the median value per client. Many of the services are in the Low Value | Low Cost quadrant in the lower left. For example, the Prevention services do not deliver a great deal of value to a client, but they do not cost much to deliver either. Many other services are in the High Value | High Cost quadrant. More interesting, perhaps are the two services in the Low Value | High Cost quadrant. Allocation of resources to these services appears to be a problem: they are costly to deliver, yet the agency evaluates them as delivering relatively low value. Conversely, the two services in the High Value | Low Cost quadrant, appear to be opportunities for relatively low cost per client as the services are believed to deliver high value. Figure 5 has a clear message: Consider transferring some of the resources allocated from the Low Value | High Cost services to the High Value | Low Cost services.

We can gain further insights by looking at the total allocations to services by quadrant as shown in Table 5. First, Table 5 reveals that Low Value | High Cost services receive more than 15% of the allocation and more than six times the

allocation for High Value | Low Cost services. Second, High Value | High Cost services receive the preponderance of the agency's resources.

	Low Cost	High Cost
High Value	2.5%	71.9%
Low Value	10.5%	15.1%

TABLE 5. ALLOCATIONS BY QUADRANT

Table 6 provides a more detailed look at the costs, values and allocations of services. Table 6 is sorted from highest to lowest on:

$$\text{Value}/\text{Cost} = \frac{\text{Value}/\text{Client}}{\text{Cost}/\text{Client}}.$$

That is, value/cost is the value that the agency gets by spending a dollar on that service.

Core	Service	Clients	Cost/Client	Value/Client	Value/Cost	Allocation
Prevention	P2	3450	$1.25	3	2.40	0.2%
Family	FC2	135	$25.00	59.5	2.38	0.2%
Prevention	P3	5689	$3.38	6	1.78	1.0%
Prevention	P1	10456	$5.25	9	1.71	2.9%
Brief	BS1	1345	$33.41	31.5	0.94	2.4%
Family	FC1	340	$50.00	41	0.82	0.9%
Family	FC3	450	$35.00	28	0.80	0.8%
Crisis	CS2	355	$124.57	68.5	0.55	2.3%
Crisis	CS3	459	$135.60	73.5	0.54	3.3%
Brief	BS2	675	$65.51	22	0.34	2.3%
Crisis	CS1	764	$175.25	58.5	0.33	7.0%
Counseling	C1	369	$450.00	26.5	0.06	8.7%
Specialized	S1	67	$1,000.00	63.5	0.06	3.5%
Counseling	C2	135	$900.00	41.5	0.05	6.4%
Specialized	S2	25	$1,500.00	62.5	0.04	2.0%
Intense	IT1	56	$5,000.00	59.5	0.01	14.7%
Intense	IT2	45	$12,500.00	81.5	0.01	29.5%
Intense	IT3	5	$45,000.00	71.5	0.00	11.8%

TABLE 6. VALUE AND COST TABLE

Everything else being equal, the agency can increase the total value delivered by its services by shifting resources from lower Value/Cost services to higher Value/Cost services. Therefore, Table 6 helps identify more possibilities for changing allocations. For example, the Prevention service P_2 provides very high value per dollar, largely because the per-client cost is so inexpensive. Similarly, the family and caregiver support service FC_2 also provides an opportunity because it is much cheaper to deliver than other services delivering comparable value. Conversely, several of the specialized and intensive services have low value/cost, even though they deliver a lot of value, because they are extremely expensive.

		Current Allocation		New Allocation	
Core	**Service**	**Clients**	**Allocation**	**Clients**	**Allocation**
Brief	BS1	1345	2.4%	1500	2.6%
	BS2	675	2.3%	650	2.2%
Counseling	C1	369	8.7%	504	11.9%
	C2	135	6.4%	0	0.0%
Crisis	CS1	764	7.0%	500	4.6%
	CS2	355	2.3%	750	4.9%
	CS3	459	3.3%	750	5.3%
Family	FC1	340	0.9%	500	1.3%
	FC2	135	0.2%	500	0.7%
	FC3	450	0.8%	500	0.9%
Intense	IT1	56	14.7%	56	14.7%
	IT2	45	29.5%	45	29.6%
	IT3	5	11.8%	0	0.0%
	IT4	0	0.0%	5	7.9%
Prevention	P1	10456	2.9%	15000	4.1%
	P2	3450	0.2%	15000	1.0%
	P3	5689	1.0%	15000	2.7%
Specialized	S1	67	3.5%	67	3.5%
	S2	25	2.0%	25	2.0%

TABLE 4. CURRENT AND NEW ALLOCATIONS.

In summary, Figure 5 and Tables 5 and 6 suggest that the agency can increase the total value delivered by decreasing allocations to Low Value | High Cost services (which include two counseling services in this example) and High Value | High Cost services (largely intensive services and specialized assessments) and increasing allocation to Prevention, Family-Caregiver Support, and other High Value | Low Cost services.

Changing the allocation

The value-based planning process offers suggestions based on examination of the data at the core services level and the services level, but are only suggestions. Changes in programs and services may be constrained by many factors.

We assume in this case that there were no additional funds available. Moreover, we assumed the agency wanted to ensure that clients who were currently receiving a service in a given Core Service category would continue to receive a service.

The agency changes the allocations by changing the number of clients that it plans to serve for each service type. For the new allocation, the number of clients is green when there is an increase and red when there is a decrease.
For example, the agency increased the capacity for delivering Brief Service B_1 to 1500 clients. They eliminated funding for Counseling service CS_2 and shifted all clients to the higher Value/Cost CS_1. Capacities for family-caregiver services were increased. In a difficult decision, they created a new intensive service IT_4 that was judged to be less valuable than IT_3 (a score of 60 / client versus 71.5 / client) but significantly less expensive ($30,000 / client versus $45,000 / client). Prevention services P_1, P_2, and P_3 were expanded to serve many more clients.

These shifts more than doubled the total number of clients served from 24,820 to 51,352, largely because of the increase in the number who received a preventive service. The total cost dropped very slightly from $1,903,620 to $1,902,409. We can calculate the total value of the services delivered by summing the value of each service delivered to these clients. The total value increases from 298,006 in the old allocation to 558,023 in the new allocation, an increase of 87%.

Figure 6 shows how this changes the allocation at the core services level. Intensive services still dominate the allocation. This is largely because the agency was committed to providing intensive services to every client currently receiving it, hence only a small reduction was possible. Prevention however, increased from 4.1% to 7.8% and family-caregiver support increased from 1.9% to 2.9% of the budget. These are large increases relative to the baseline allocations for these categories, yet they have relatively visible impact on the profile. Because these core service categories cost relatively little, it is harder than one might guess to spend a lot on them.

Comments on the use of value and cost data

In this example, we have stressed that allocation decisions should be *informed* by value and cost data, *but not dictated by them*. Service areas have unique issues and the solutions to these problems cannot be reduced to a formula. We want to be crystal clear that we are not arguing that lead agencies should allocate all their resources to High Value | Low

Cost services, particularly if this would require the abandonment of high need clients for whom no High Value | Low Cost service is available.

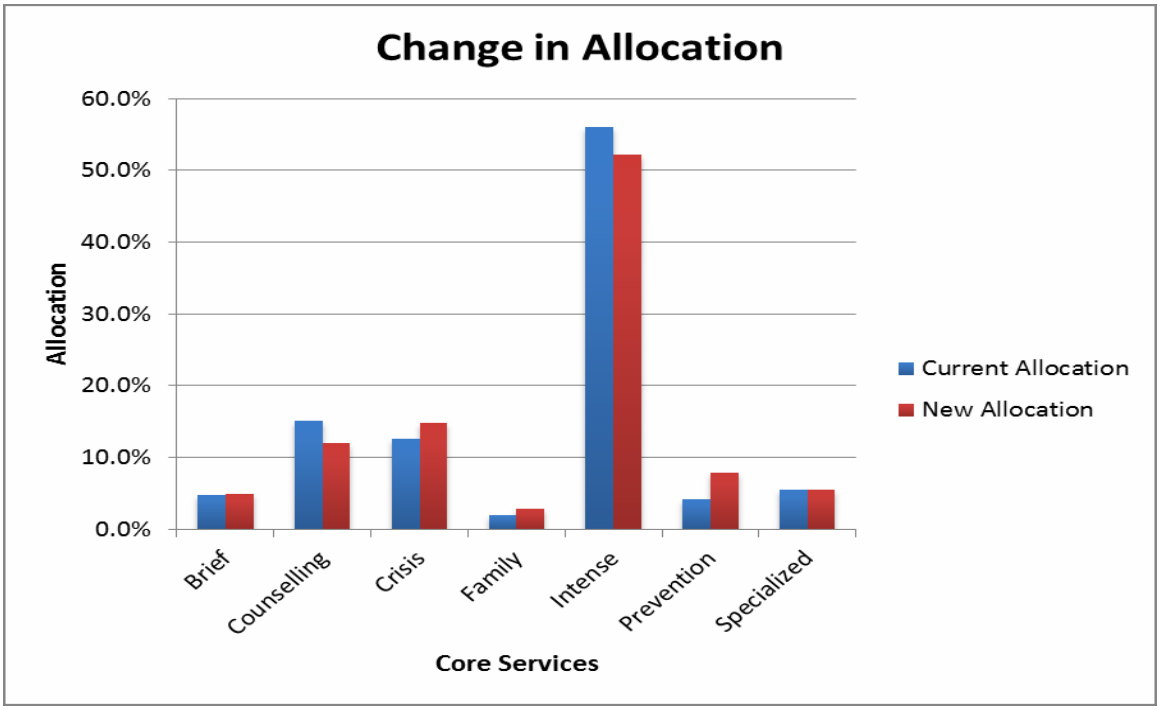

FIGURE 6. CHANGE IN ALLOCATION

Summary and future directions

Summary

Lead agencies are tasked with providing and coordinating a range of core services in their communities given resource constraints. We propose a value-based planning process that goes beyond costs and allows for other important considerations for evidence-informed decision-making. This value-based planning approach promotes community collaboration, funding accountability and transparent decision-making.

In our example, the value-based planning process allowed the agency to shift to an allocation that:

- maintained the agency's budget
- increased the number of clients served
- did not deprive existing clients of needed services
- increased the value of the services delivered

Of course, the numbers in the example were constructed to show how an improvement in an allocation may be possible. We will need to try it to learn whether these kinds of improvements can be achieved in practice.

What are advantages of this process?

1. It gives MCYS and lead agencies a process and standardized framework for evaluating specific services and core services.
2. It helps lead agencies avoid the problem of focusing only on one factor such as client need or unmet demand in the evaluation of services.
3. It enables agencies to examine the allocation of services in terms of both value and cost, suggesting novel directions for improving the allocation of services.

The proposed process helps agencies organize their knowledge about what works for their clients. We believe that lead agencies may already be thinking about the allocation problem using factors like benefit, cost and client needs. But they are unlikely to be doing this in a systematic way. By standardizing a common process, service areas can move from a fragmented opinion-based system towards a more accountable and transparent system where decisions are owned by communities, rather than being driven by happenstance or the loudest voice.

Using this method, we hope that agencies can find ways to shift their allocations in ways that would improve the value they deliver to clients. We in no way expect that the results of this process would *dictate* a services allocation. Many of the proposed resources shifts may not be feasible. We simply propose a method whereby the agency can distill the expert judgments of its personnel in a way that points to possible ways to improve services. It is also important to note that this is an iterative process and has the flexibility to change over time.

Among the most important points to stress is that this is a group decision-making process. The process should be conducted so as to engage all relevant parties. This will help us gain the maximum information about the value of services. Changes in allocations are always controversial, so it is critical that participants understand the process and trust that it is fair.

Development and piloting of the process

Many steps are required to develop the value-based planning process to a point where it could be used by agencies:

1. An advisory group of lead agencies should be formed as advisers for the Value-Based Planning project.
2. Standardized definitions must be written and agreed upon for specific services by the advisory group.
3. In collaboration with the advisory group, the VBP project needs to choose and refine the definitions of the dimensions of value (e.g. benefit, need and demand). Similarly, we need to agree on a procedure for getting data and stakeholders' judgments on the equity of care.
4. We need to develop tools and procedures to enable agencies to rate the dimensions of value. Recommendations should be developed for who should rate the dimensions and how they should rate them.
5. Software tools should be developed for entering data, analyzing data and displaying results.
6. A knowledge mobilization component will be incorporated into the roll out of this process, and will include initial training on how to generate the framework as well as assistance with the determination of value and costs per cell.
7. We need to establish a database to store value rating data. This will make it possible to have an ongoing exchange of information and collection of data across lead agencies and service areas to allow for continued improvement following implementation.

The value-based planning process should be piloted in one or two communities to determine the feasibility of uptake and determine additional training materials as required, with facilitation from the Centre of Excellence for the implementation process. The goal should be to get feedback from diverse communities to ensure that the process will work across the province.

Once the pilot agency is satisfied with the process and utilizing the process and the implementation guidelines have been tailored to optimize uptake, the process can be rolled out to other agencies.

Future directions

Agencies will be updating their allocations, perhaps annually. This gives us an opportunity to improve the planning process over time. Over time, MCYS and lead agencies will have better information on every aspect of services and client needs. This process will be an important source for these data and it will thereby contribute to generating an increased base of evidence and accountability. Nevertheless, decisions on allocations of core services will continue to be based in the community.

As data are accumulated from many agencies, a consensus may emerge from the rating data about the costs and the relative values of different services. Each service area will have data from other service areas to provide a source for

comparison in generation of value and allocations to various services. The lead agency of one service area might see that another service area has found a High Value | Low Cost solution to a difficult problem. Collection of value data from multiple agencies will also allow MCYS to assess the reliability of value ratings. This would help fine-tune the procedure to improve the quality of the rating procedures.

Over time, we can look for ways to incorporate external sources of data into the value rating process. As MCYS develops performance measures, the results of these studies can be fed back into the benefit rating process to increase its validity. Similarly, the rating of benefit can be informed by evidence reviews, ratings of need can be informed by epidemiological research, and ratings of demand can be informed by analysis of wait time data. Over time, we can reduce subjective ratings of value with empirical data, increasing the objectivity of value measurement.

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