A special thanks to the Agency for Healthcare Research and Quality (AHRQ) for sponsoring the original guide from which we derived this current guide:

INTRODUCTION

Over many decades, growth in health care costs has outpaced gross domestic product (GDP) growth, leading to a rising share of U.S. expenditures going toward health care. Part of this growth is due to the traditional health care payment system, compensating providers for each and every service they deliver to patients (i.e., fee-for-service); the more services they provide, the more money they receive.

In response to this daunting growth, employers and other health care purchasers, payers, providers, researchers, and policy experts began to examine alternative payment methods (APMs) to counteract the “volume” incentive inherent in traditional payments. Over the past ten years, payment reform, delivery system reform, and innovation in benefit and network design have taken off, including the following strategies:

Value-oriented strategies to change the performance of health care providers

Payment reform:
- Pay-for-performance
- Shared savings
- Shared risk
- Bundled or episode-based payment
- Capitation

Delivery reform:
- Accountable care organizations
- Patient-centered medical homes

Value-oriented strategies to change the behavior and decisions of consumers

Innovative benefit & network designs:
- High deductible health plans
- Value-based insurance design
- Reference pricing
- Centers of excellence
- Narrow networks
- Tiered networks

Payment reform has grown rapidly due to efforts by payers, purchasers, and providers to find ways to improve health care and make it affordable. In 2010, just 1-3% of payments to providers were tied to performance, whereas today more than half of payments to doctors and hospitals are value-oriented—made through methods aspiring to improve the quality, efficiency, and affordability of care.¹

Despite these efforts to advance APMs, there has not been a commensurate level of effort to evaluate the effectiveness and impact of these new payment methods.

Public data on the effectiveness of payment reforms and other value-oriented strategies, including benefit and network designs, are limited; for the most part, it is still unclear whether they will produce better and more affordable care for purchasers and consumers alike. Payers are in a strong position to undertake rigorous evaluations of these new approaches, but either they do not make the investment or choose not to share all of the results with their purchaser customers. The reports payers provide tend to display only a few metrics, typically those showing performance is improving, not a comprehensive view of the impact on cost and quality. For purchasers eager to identify and adopt effective strategies and to steer clear of ineffective ones, the evaluation of value-oriented approaches and public sharing of results are critical.

**Purpose and Goals**

In 2002, Dennis Scanlon, Michael Chernew, and Hilary Doty developed a guide to help purchasers evaluate the impact of value-oriented programs, with the intention to “encourage purchasers, especially employers, to conduct formal evaluations of their value-oriented activities” and to “facilitate that effort by presenting an evaluation process that purchasers can adopt and adapt to their projects,” (Scanlon et al.).

While much has happened with regard to value-oriented strategies in the ensuing seventeen years, the issues presented in their guide, as well as their goals, remain relevant. It is still critical to arm purchasers with accessible tools to:

1. **Enhance understanding of the possible methods to evaluate a program,**
2. **Provide a meaningful and comprehensive way to assess a value-oriented program’s impact.**

**Contents**

This guide will help purchasers that have developed and implemented a value-oriented strategy evaluate its impact on health care costs and quality.

First, purchasers should understand the various ways to evaluate programs that enable them to compare results (e.g., change in cost, quality and utilization over time and/or compared to a control group) and which method to use in which circumstance.

Second, purchasers should articulate which questions they want the evaluation to answer (e.g., are my costs decreasing as a result of the program? Is patient experience of care improving?). CPR has developed various evaluation reports, listing these questions in the form of metrics. Purchasers can use these reports to evaluate a program’s impact on cost, quality, and utilization using the methodologies we outline in this guide.
METHODOLOGIES TO EVALUATE VALUE-ORIENTED STRATEGIES

The first step in evaluating a value-oriented strategy is to select a methodology—a detailed plan for a systematic investigation—to assess the impact of an intervention (e.g., a payment reform program) on one or more variables (e.g., cost, quality, utilization). Evaluators can use a number of different research designs, each representing "a somewhat different way of gauging the degree to which the intervention led to a positive or negative change in the variables" (Scanlon et al.).

The research design is highly dependent on how the value-oriented strategy is rolled out during implementation. Stronger designs are those that incorporate a ‘control group,’ defined as a group of subjects (e.g., employees, patients, physicians, etc.) that are not exposed to the value-oriented intervention. One of the strongest designs using control groups is to randomize the subjects exposed to the value-oriented intervention or in the control group. In this case, the natural control group is the group of subjects randomized not to be exposed to the intervention. However, randomization is not always possible, and thus researchers look for other control group options, such as another group of subjects (e.g., employees at a different location) that have not been exposed to the intervention. When planning both a value-oriented intervention and the evaluation of that intervention, it is important to consider the control group.

Research methods can be qualitative, generating findings through descriptions and interviews, or quantitative, producing findings through numbers and data. Both methods can be used separately but they can also be complementary when used together as a “mixed methods research design.” Qualitative and quantitative methods carry advantages and disadvantages both in terms of the level of depth and focus on the phenomenon being studied, but also the degree of uncertainty regarding the findings the methods produce. This is most obvious when considering statistical uncertainty in quantitative analysis, but uncertainty also exists in qualitative and mixed methods designs. While minimizing uncertainty is ideal, there are practical constraints, including resources available for the evaluation, length of the evaluation, and the degree to which experimentation is possible, as described above.

Qualitative Methods

Qualitative methods can provide meaningful context that quantitative methods cannot. For instance, researchers can learn whether employees are conscious of their out-of-pocket differentials for various services or providers, or whether providers know which quality measures are the focus of their performance assessment, for instance. Qualitative methods can also explain findings from quantitative analyses—e.g., the data may show no improvements in quality a year after the intervention, but the qualitative study may reveal that providers are
changing their attitudes or behaviors, which is likely to lead to quality improvements as the program matures.

The three qualitative methods that can be used for evaluating value-oriented strategies are 1) focus groups, 2) interviews, and 3) case studies.

1) Focus Groups. Focus groups invite individuals with a similar experience or characteristics to discuss a set of topics together. This methodology helps researchers glean insights from the various perspectives and feedback of the participants (e.g., are the patients participating in the patient-centered medical home having a positive care experience?). Using a discussion guide with questions, a moderator leads a discussion around a series of topics and encourages the group to share their own individual views. The moderator reviews meeting notes and identifies key themes. To encourage individuals to participate in the focus group, researchers usually compensate them for their time in the form of cash payments or gift cards. Under this methodology, it is ideal to conduct more than one focus group session so as not to end up with biased results and to broaden the sample size of participants.
Advantages

Focus groups can be conducted quickly and done at little expense.

They provide ‘ground-level’ insights and also make it easy to identify key observations and personal anecdotes from the participants.

Disadvantages

Findings from focus groups cannot be used to make inferences about a larger population because they are conducted with a small group and the opinions and views of some individuals can influence those of the other participants (e.g., ‘group think’).

Focus groups can also be subject to participant or researcher bias.

Example: Accountable Care Organizations: Benefits and Barriers as Perceived by Rural Health Clinic Management.

2) Interviews. Interviews collect information through guided discussions with key individuals. This methodology also helps researchers garner feedback and glean insights (e.g., how does one provider experience and react to quality incentives?) but is typically conducted on a one-on-one basis by phone or in person. An interviewer develops a discussion guide, consisting of open-ended or semi-structured questions, designed to focus the conversation on a particular topic. Questions should be non-leading in nature. Interviews are conducted in-person or over the phone and are often recorded or transcribed.
Advantages

Interviews can be flexible—formal or semi-formal, vary in length, level of detail, etc.

They also provide useful individual insights, help identify themes, and can delve into important aspects of context around the value-oriented program in question.

Interviews can elicit more honest, non-biased feedback because the individual is not swayed by others’ opinions, as can be the case in a focus group.

Example: Multistakeholder Perspectives on Composite Measures of Ambulatory Care Quality.

Disadvantages

Interviews with a large enough sample size of people can be time-consuming. Generally, researchers target a sample size that will yield “saturation,” meaning that one additional interview won’t yield more insight into the question at hand (e.g., themes and responses become repetitive). The sample size needed to achieve saturation varies by topic, but if the sample size is not large enough, researchers will face challenges generalizing findings.

Interviews may also be subject to interviewee or researcher bias.

3) Case Studies. Case studies are empirical inquiries that investigate a phenomenon in a real-world context. They can be used early in the implementation of a value-oriented strategy to identify potential challenges and the likelihood of its success (e.g., the program requires intensive startup costs and changes to the provider’s infrastructure). Case studies can also assess a hypothesis about a value-oriented strategy’s impact on intended outcomes (e.g., reference pricing is intended to reduce variation in pricing, are we seeing that effect?). “The primary tools used to analyze cases include interviews with key informants, structured observations, and the collection and analysis of documents” (Scanlon et al.).
Advantages

Case studies can be conducted quickly and at a low cost.

They are comprehensive and descriptive in nature, and thus can easily present findings or observations from implementing the value-oriented strategy.

Disadvantages

The completion of case studies may be contingent on the schedules, review, and approval of external parties, and may also be time-consuming.

They can also be subject to interviewee or researcher bias and the findings may not be generalizable, even to other similar cases, because they cover a defined, specific example of an intervention and its outcomes.

Example: 2013 South Carolina Birth Outcomes Initiative Case Study.

Quantitative Methods

Quantitative methods establish numerical evidence regarding a correlation\(^2\) or causation\(^3\) between the value-oriented strategy and its intended outcomes. Quantitative methods can use observations over time, comparisons to a non-intervention or control group, or both, which enables the researcher to isolate the impact of the program and its outcomes from another unrelated event. A comparison point, either before the intervention or to a non-intervention group, strengthens and adds validity to the ability of the method to capture the causal effects of the program.

The five quantitative methods that are particularly relevant for evaluating value-oriented strategies are 1) cross-sectional design with no comparison, 2) pre-test/post-test, 3) cross-sectional design with comparison group or static group comparison, 4) nonequivalent comparison group, and 5) time series.

1) Cross-sectional design with no comparison. This method measures variables in the intervention group one or more times after the intervention occurred (e.g., current period to prior period). This method does not use a comparison group, nor does it compare current outcomes to those generated before the intervention occurred. Evaluators examine outcomes compared "to an internally defined set of standards or external benchmarks," for example, regional or national (Scanlon et al.). Evaluators can also use statistical tests to compare the outcomes to each other over time (e.g., patient experience of care score in the first year of the program compared to patient experience of care score in the second year) to see if performance on the measures is meaningfully different from one time period to another. Evaluators can

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\(^2\) The relationship between two sets of variables used to describe or predict information.

\(^3\) When an observed event or action appears to have caused a second event or action.
also use statistical techniques to see with some degree of certainty if the outcomes vary across subgroups (e.g., by the gender or age of a patient).

Figure 2.

Advantages
Data requirements are low because researchers are only analyzing data after the intervention was implemented and they do not need to find an identical comparison group.

Disadvantages
This method cannot be used to draw firm conclusions about the program’s impact because it does not use a comparison group and it does not examine variables in the period before the intervention was implemented.

Example: An Employer Health Incentive Plan for Advance Care Planning and Goal-Aligned Care.

2) Pre-test/post-test. These methods compare data collected after the intervention to data collected before the intervention occurred (e.g., outcomes before implementing the value-oriented strategy compared to after), assuming that the units under observation (e.g., individuals) would be the same at both points in time. Researchers typically assess whether any differences in the variables before and after the intervention are statistically significant. However, when data are only available at the organizational level, it becomes challenging because the number of observations may be insufficient to draw refined conclusions.
**Advantages**

The collection of pre-intervention data allows for comparisons to post-intervention information collected.

Researchers can also collect observations and trend data on an ongoing basis after the intervention, which will help them investigate whether the effects continue over time or if a lag exists.

**Disadvantages**

There may be many alternative explanations for changes in variables from before the intervention to after.

This method does not control for time trends, so it is possible that the outcome would have taken place in the absence of the intervention because the trend was already underway (e.g., health plan premiums were falling for reasons unrelated to the value-oriented strategy).

The methodology also makes it challenging to capture other interventions or external events that may have occurred concurrently that could be responsible for the observed change.

*Example:* Impact of Vaccine Economic Programs on Physician Referrals of Children to Public Vaccine Clinics: A Pre-Post Comparison.

3) **Cross-sectional design with comparison group.** This method measures outcomes in the intervention group one or more times after the intervention occurred (e.g., current period to prior period). Researchers also use a comparison or control group—one that is similar to the population under study but that does not participate in the value-oriented program. Outcomes are examined compared to an internally defined set of standards or external benchmarks (e.g., regional or national). “The assumption is that what is observed for the comparison group is what would have been observed in the intervention group in the absence of the intervention.
Researchers gather observations at the same point in time for the intervention and control groups, using the same measurement approaches and variable definitions (Scanlon et al.). Researchers test for statistically significant differences in outcomes between the intervention group and the comparison group.

Figure 4.

**Advantages**

This methodology allows evaluators to draw stronger assumptions about the impact of the value-oriented program on outcomes because it uses a comparison group.

It also only requires gathering observations after the intervention was implemented. Therefore, it can be used in cases where purchasers did not contemplate conducting an evaluation before the program was implemented.

**Disadvantages**

This methodology presents challenges if the comparison group is not almost identical to the intervention group. In such case, any observed differences between the two groups could merely represent differences existing absent the intervention. Case-mix adjustment may be necessary to address such concerns, although some small differences between the groups may still exist.

In addition, if the treatment and control groups are in close proximity, spillover effects could occur (contamination of the comparison group). For example, if the intervention involves changing
provider behavior for patients enrolled in an ACO, the providers may change how they deliver care to all of their patients, leading the researcher to under-estimate the effects of the value-oriented strategy.

Example: The CareFirst Patient-Centered Medical Home Program: Cost and Utilization Effects in Its First Three Years.

4) Nonequivalent comparison group. This research methodology “combines the strengths of pre-test/post-test with that of cross-sectional with comparison group” (Scanlon et al.). It is called the nonequivalent comparison group design because researchers select similar groups (e.g., employees in one location compared to employees in another) as the intervention and comparison groups, as opposed to assigning participants through random lottery. As selected groups are not as comparable to each other as randomly assigned groups, they are deemed ‘nonequivalent.’ Researchers measure outcomes both pre- and post-intervention for the intervention group and the comparison group. The comparison group helps researchers control for factors that may threaten the validity of the pre-test/post-test methodology. Researchers can also observe pre-intervention differences between the groups to control for factors that may have confounded the cross-sectional with comparison group methodology.

Figure 5.
Advantages

Building on the strengths of pre-test/post-test (allowing for comparisons of baseline and post-intervention data) and cross-sectional with comparison group (control group increases validity of findings), this methodology also mitigates the disadvantages of other methodologies.

To the extent that the intervention and comparison groups are as similar as possible—except for the value-oriented strategy—this methodology can control for potential trend effects and the effects of simultaneous events.

Disadvantages

This methodology may still be subject to spillover effects, which could either under- or overestimate the effects of the value-oriented strategy.

It is also possible that the comparison and intervention groups are too dissimilar, particularly if participants are not randomly assigned. But the differences only threaten validity if they vary over time, as multivariate analysis can adjust for any difference that is constant between the groups (e.g., the intervention group is based in a city and the comparison group in a rural community with differing health care costs). Thus, if the difference is reasonably constant over time, it will not bias the results.

Selection bias may be another issue if the groups are not randomly assigned. However, randomization is not possible for most value-oriented interventions.

Example: Impact of High-Deductible Health Plans on Outpatient Visits and Associated Diagnostic Test.

5) Time series. This methodology can address the issue of underlying trends by capturing the trends underway when the intervention is implemented. Researchers then make observations after the intervention is implemented to test whether the value-oriented strategy caused a deviation from that trend. This methodology assumes that the value-oriented activity does not alter the underlying trend and, therefore, affects the outcome, which persists over time.
Advantages

This methodology can establish whether a change in the variable being measured is actually the result of an intervention or the result of a trend already underway, in contrast to pre-test/post-test methodology.

Disadvantages

The number of observations made before the intervention and the stability of the trend dictates whether the methodology controls for external time trends. Any other external factor that occurs on top of the trend, influences the trend and/or alongside the intervention will confound the results.

This methodology also requires that data be gathered consistently and that it is available over long periods of time before and after the intervention.

Example: Association Between Hospitals’ Engagement in Value-Based Reforms and Readmission Reduction in the Hospital Readmission Reduction Program.

Choosing the Right Methodology and Approach

Numerous factors can influence which methodology is best suited for evaluating a particular value-oriented strategy. Purchasers can identify a methodology by considering the following questions:

What do you want to learn and how do you expect to use the information? Some purchasers conduct evaluations to identify barriers or acquire stakeholder feedback. Others want to assess whether to continue to invest in a value-oriented program. Qualitative methodologies, like interviews or focus groups, can be useful in assessing the merits of a value-oriented program by getting ‘real world’ feedback.
from participating stakeholders. Quantitative methodologies can help a purchaser weigh the costs and benefits of the initiative.

**What kind of evidence do you need?** This is very important for purchasers to consider when selecting a methodology. In some cases, a correlation between the intervention and measured outcomes may be sufficient. In other cases, evidence of causation may be required. Statistical analyses can vary in their ability to detect an effect if one exists and the statistical power depends on the effect and sample size. These factors are important for purchasers to keep in mind. Qualitative methods can yield rich insights, but usually are not presented with numeric findings, save for cases when simple statistics, such as frequency counts, for example, are discussed.

**Do you need to defend the results to an external audience?** Purchasers should think about the level of certainty they need regarding the results. If company leaders (e.g., CFO), providers, media, and/or health plans are likely to scrutinize the results, purchasers need to choose a methodology that can explain the effects of other variables on the outcomes, in addition to the value-oriented strategy. A purchaser’s ability to implement one of these methodologies will depend on whether it has baseline data, comparison groups, adequate sample sizes, and the ability to randomly assign participants.

**How much money are you willing to spend?** Some evaluation methodologies are pricier than others so it’s important to be aware of the relative costs. Some purchasers can use internal resources or work with program partners to overcome financial barriers. Some academic researchers may be willing to donate their time to conduct an evaluation on behalf of the purchaser, particularly if they are allowed to publish the results. Some purchasers can take advantage of internal analysts to help with evaluation. Evaluation costs typically involve analyst/researcher time, data costs, travel and participant incentives, and any additional project specific or administrative overhead that is required.

**How much time do you have for the evaluation?** This will primarily be driven by when the purchaser needs the results. It may also depend on budgets and staff availability. The methodologies available will differ if a purchaser needs an analysis completed in 6 months versus 3 years. While not ideal, evaluations are most often an afterthought and, thus, not planned well in advance. It is always recommended that purchasers consider evaluation when they implement a value-oriented program, as a way to help ensure they choose the best evaluation design and also to be efficient in the cost of executing the design.

**Who should conduct the evaluation?** Purchasers can choose to conduct the evaluation internally with their own staff members or with help from a benefits consulting firm, the entity implementing the program—such as the health plan—or by an independent researcher. Selection of the evaluator can be contingent on time constraints, the amount the purchaser is willing to spend on the analysis, as well as the desired rigor of the evaluation. An analyst or actuary within the company could conduct an internal evaluation, which may be relatively inexpensive. While the
purchaser may be able to acquire data through the company’s data warehouse, it may not be able to acquire all data of interest, nor have staff with the required expertise to conduct the evaluation. Benefits consultants can help purchasers evaluate a value-oriented strategy by suggesting methodologies and metrics to assess and helping pull needed data from a data warehouse. Health plans are also in a good position to evaluate a value-oriented program. Purchasers can try to stipulate which methodology and metrics the health plan should use and report, but many health plans may not be fully transparent with customers about the impact of such programs. Purchasers can also ask independent researchers to evaluate their value-oriented programs. Independent researchers can be the least subject to biases about the outcomes. They may also have the most rigorous training, identifying appropriate study designs and metrics based on what purchasers would like to learn and how they expect to use the information. However, independent researchers may face challenges acquiring some of the data needed to assess the impact of the program comprehensively and they may need funding to support their evaluation.

**What kind of data are available to you?** The selection of a methodology may also depend on the nature and scope of data that is readily available to purchasers. To the extent data is controlled by health care providers or health plans, purchasers should consider how cooperative their partners will be. By planning ahead for the evaluation and incorporating requests for data into contract negotiations, purchasers may have more success obtaining the data they will need later.


**ASSESSING THE IMPACT OF VALUE-ORIENTED STRATEGIES**

After selecting a research methodology, purchasers and their health care partners should identify metrics to assess the impact of the value-oriented program. The intention of almost every value-oriented program is to lower health care costs or cost trends and improve quality of care and/or patient experience, all while ensuring appropriate utilization of care. Thus, regardless of the methodology chosen, purchasers should select measures that will help them assess whether the program is having the intended impact.

Catalyst for Payment Reform (CPR) has developed a resource that purchasers can use with their contracted health plans to demand greater insight into health plans’ ACO performance. In November 2017, CPR released the Standardized Plan ACO Reporting for Customers (SPARC), including the flagship SPARC resource, the Standard Plan ACO Report. Widespread requests for the Report will help to create a standard for meaningful and comprehensive reporting on ACO performance.

The Standard Plan ACO Report emulates the nutrition label on packaged foods so as to provide purchasers with a quick, standardized way to review and assess a program’s value. The Report displays cost, quality, and utilization metrics meaningful to purchasers, and uses methodologies to help the purchaser best assess whether the program is leading to more affordable, better quality care.

**Cost.** The Report includes metrics to assess the impact of the value-oriented program on costs (e.g., costs borne by the purchaser, costs saved according to the methodology selected). Some of these metrics will depend on the payment model in play, as well as the selected evaluation methodology.

**Quality.** The quality measures identified in the Standard Plan ACO Report come from the Integrated Healthcare Association-Pacific Business Group on Health’s ACO Measure Set, which includes key cost, utilization and quality metrics. The ACO Measure Set represents the most comprehensive effort to date to identify and create a standard list of key measures for assessing ACO performance. The ACO Measure Set also considers the priorities of purchasers.

**Utilization.** The utilization measures in the Report are meant to quantify the use of certain kinds of health care services—ones that may be most influenced by payment and delivery reforms, or benefit and network designs, including hospital admissions and pharmaceutical use, among others. In general, if care is being managed well and patients receive preventive services, utilization of certain kinds of care (e.g., emergency room use) should decrease and utilization of other kinds of care (e.g., primary care visits) should increase. Purchasers should be aware that savings from reduced use of resources does not always flow directly back to them (e.g., if providers receive full capitation, purchasers will only capture savings if the capitation rates are lowered).
The Standard Plan ACO Report can help purchasers assess program outcomes. Purchasers can present the Report to their health plan and request that they use the Report regularly to share information on the performance of health plans’ ACOs. Alternatively, if feasible, purchasers can use their data warehouses and other publicly available information (e.g., HEDIS, CAHPS) to examine results. Sometimes health care providers may be the source of the information, such as when they collect patient experience of care data.

Once the data is populated into the Report, the purchaser will be able to draw conclusions about program impacts and assess how the value-oriented strategy impacts quality and affordability. For this step, purchasers can involve their health care partners to examine the results collectively and discuss what changes could be made to the program to improve outcomes (e.g., strengthen consumer incentives so that they are further encouraged to seek care from the ACO over non-ACO providers).

Instead of working with their health plans, purchasers can also approach independent evaluators to help them select appropriate methodologies and metrics to evaluate their programs. Not only are independent researchers trained to do this kind of work, but they should be less biased when it comes to the results. However, they may need funding to perform the evaluation.

If you need help finding someone, please contact Catalyst for Payment Reform, Dennis Scanlon (dpscanlon@psu.edu) or Michael Chernew (chernew@hcp.med.harvard.edu).
CONCLUSION

As value-oriented programs proliferate, purchasers must have adequate information to assess their impact. Having the know-how to select the ideal methodology to analyze results and a standard, comprehensive report with useful metrics, will help purchasers in this effort.

To inform the broader purchaser community about which value-oriented programs work and in which context, public dissemination of the results is critical. Without public dissemination, others will not have the insight to build on or expand models that work and avoid programs that do not. If only a select few are implementing effective value-oriented strategies, it will have little to no impact on the affordability and quality of health care across the U.S. Purchasers have multiple avenues to disseminate results. CPR is working with large, innovative purchasers to publish results through case studies. For those that have their programs evaluated by independent researchers, they can have their program results released as a formal publication in an academic, peer-reviewed journal. Regardless of the method of release, it is critical that purchasers share or disseminate learnings.

As the number of rigorous evaluations grows, purchasers and other stakeholders will begin to understand the value of certain value-oriented programs and under which circumstances they succeed. With more evidence, the health care industry can make more informed decisions about which strategies to implement and expand—and which are no longer worth the investment—in the pursuit of higher quality, more affordable care.

REFERENCE

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