



The California Community Colleges Chancellor's Office uses multiple data sources to track core matriculation services to ensure student success. (Solano Community College - Scott Chernis Photography)

Ensuring Equitable Access and Success: A Guide to Assessing and Mitigating Disproportionate Impact in Student Success and Support Programs

*California Community Colleges Chancellor's Office
Brice W. Harris, Chancellor*



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Ensuring Equitable Access and Success

Introduction

In January 2011, the State Chancellor of the California Community Colleges (CCC) appointed a group of 21 academic, research and business leaders to a task force charged with “examin[ing] strategies for promoting student success, including improving student assessment, delivering remedial instruction, increasing access to financial aid and academic counseling and identifying national funding models to incentivize completion rates” (California Community College Chancellor’s Office [press release](#), 1/18/11a).

Led by a representative of the Board of Governors over a 12-month period, the Task Force developed a set of 22 [recommendations](#) to “move students effectively through [the] community college system” (California Community Colleges Student Success Task Force, 2012, p. 7) (see text box, *Student Success Task Force Recommendations*, on Page 3).

One set of key recommendations focuses on *Strengthening Support for Entering Students* and offers a number of suggestions for how the Title 5 regulations associated with Student Success and Support Programs (SSSP) can be enhanced and improved in light of a 52 percent cut in these services (see text box, *The Impact of Financial Policies and Limited Student Take Up*, on Page 2).

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Title 5 of the Education Code

Title 5 regulations are the working understanding of Education Code mandates established by the California Legislature. Education Code supersedes Title 5 regulations. The California Community College’s Board of Governors is responsible for approving Title 5 regulations, and the California Community Colleges Chancellor’s Office is responsible for implementation and compliance (<http://www.ccccurriculum.net/compliance-2/title-5/>)

The Impact of Financial Policies and Limited Student Take Up

Students take up of SSSP services is often underreported, which makes a determination of students' access to these services extremely difficult. Using available data, one study found that "in fall 2008, when more than 88 percent of first-time community college students were taking credit-bearing courses and thus, should have received SSSP services, only 49 percent went through orientation, 63 percent underwent placement assessment, and 39 percent worked with a counselor. Among those who did avail themselves of services, a significant percentage failed to complete these processes by, for example, taking a basic skills course after being assessed as below college level in a content area, or completing an educational plan after an initial counseling session" (WestEd and RP Group, 2012, pp. 1-2).

The work of the Task Force spurred Senator Alan Lowenthal to draft and introduce the Seymour-Campbell Student Success Act of 2012 (Senate Bill 1456) to ensure the implementation of many of the Task Force's recommendations. By signing the Act into law on Sept. 27, 2012, Governor Jerry Brown approved changes to "refocus" (California Community College Chancellor's Office, [press release](#), 9/27/12) core SSSP services so that more students are receiving these services. Core matriculation services include admissions, assessment and placement, orientation, counseling and advising (educational planning) and follow-up (evaluation of student progress). This act also requires colleges to use common assessments and an accountability scorecard (see text box, *SB 1456 and the Focus on SSSP Services*). In addition, SB 1456 requires that students receiving a Board of Governor fee waiver identify an educational goal and maintain satisfactory academic progress in order to remain eligible for this waiver.

SB 1456 and the Focus on Student Success and Support Programs Services

"By refocusing (SSSP) services, SB 1456 will help more students to identify their goals and move ahead in their college experience, without their colleges having to counter-productively cut other programs they may need." Aaron Bielenberg, Mendocino College Student, Student Senator for California Community Colleges (California Community College Chancellor's Office press release, 9/27/12).

Student Success Task Force Recommendations

“Community colleges will provide stronger support for students entering college to identify and meet their goals. Stronger support will be facilitated by centralized, integrated and student-friendly technology to better guide students in their educational planning process. The efforts of counseling faculty and other college staff will be more effectively targeted.”

(California Community Colleges Student Success Task Force, 2012)

As California begins to launch activities to advance a student success agenda as outlined by the Task Force and supported by the Student Success Act, the Chancellor’s Office and the statewide Academic Senate (ASCCC) are working to maintain the system’s commitment to open access and equity while working to ensure that more students are realizing their educational goals. Given that SSSP services are often the first point of contact an entering student has with a college, institutions need to monitor and ensure that these services are provided in ways that maintain the system’s dual commitments to equity and success.

With the support and assistance of the Chancellor’s Office and its Student Equity Work Group,¹ the Research and Planning Group for California Community Colleges (RP Group), led by authors Rog  air D. Purnell and Bri C. Hays, has prepared this guide to help administrators, faculty and staff examine disproportionate impact, a condition in which some students’ access and success may be hampered by inequitable practices, policies and approaches. The issues, approaches and analyses highlighted throughout the guide have been designed to inform conversations and work related to understanding and addressing academic achievement (opportunity) gaps, developing Student Equity Plans, revising education Master Plans, conducting Program Reviews, preparing for accreditation and helping to inform and structure the efforts of committees and task forces focused on student success.

¹ The Student Equity Workgroup is “responsible for the implementation of the Board of Governor’s Student Equity Policy and related regulations, including assessing district plans and reporting recommendations to the Board of Governors, providing districts with technical assistance in the development and improvement of plans and assessing district progress towards the implementation of their plans over time” (<http://extranet.cccco.edu/Divisions/StudentServices/StudentEquity.aspx>).

Overview of the Guide

What is disproportionate impact and why is it important?

According to California Community Colleges [Matriculation Handbook](#), “disproportionate impact” is defined as follows.

“Disproportionate impact” occurs when the percentage of persons from a particular racial, ethnic, gender, age or disability group² who are directed to a particular service or placement based on an assessment instrument, method, or procedure is significantly different from the representation of that group in the population of persons being assessed, and that discrepancy is not justified by empirical evidence demonstrating that the assessment instrument, method or procedure is a valid and reliable predictor of performance in the relevant educational setting (California Community College Chancellor’s Office, 2011b, p. 2.6).

In simpler terms, **disproportionate impact is a condition where some students’ access to key resources and supports and ultimately their academic success may be hampered by inequitable practices, policies and approaches to student support.** This condition affects both students’ access to resources and courses and their success as associated with various academic milestones related to persistence and completion (e.g., term-to-term enrollment, courses passed versus courses attempted, grade point average).

The following questions serve as examples of the types of inquiries that can determine whether disproportionate impact needs to be addressed for certain SSSP services:

- Do male and female students access counseling services in different proportions relative to their representation on the campus?
- Are younger students more likely to complete an orientation course?
- If a student is 26 years or older, is s/he more likely to assess into basic skills level math?
- Is student race/ethnicity associated with lower success rates in prerequisites in certain fields of study?

The California Community College Chancellor’s Office’s Student Equity Workgroup believes that Student Success and Support Programs services should be assessed to determine whether disproportionate impact is an issue that needs addressing given

² This guide will focus on three key student characteristics that are commonly associated with disproportionate impact analyses: age, gender and race/ethnicity.

that these services are designed “to increase community college student access and success” (California Community College Chancellor’s Office, 2011b, p. 1.1).

In line with the recent passage of the Student Success Act focused on improving educational and workforce outcomes for community college students, these services can help to ensure that all students realize their educational goals by supporting their transition into college and providing a foundation for their achievement.

Disproportionate impact studies may be incorporated into college planning on a number of levels. Such studies may be utilized in unit-level planning by providing equity data to inform practice in student services or instructional areas. In addition, disproportionate impact analyses may be included in college-wide plans, such as SSSP plans, equity plans, college strategic plans, educational master plans, and accreditation self-evaluations. This guide may help to serve as a starting point for discussions of student equity, both in terms of access to services and success in college. Furthermore, the recently released Student Success Scorecard, which includes student outcome measures disaggregated by gender, ethnicity and age, provides additional opportunities for equity-focused inquiry at the college level.

How will this guide help colleges uncover and address disproportionate impact?

The following guide has been developed to **(1) help colleges better understand the concept** of disproportionate impact as it relates to the SSSP components that most affect students and why colleges need to be examining relevant data related to these services, **(2) provide colleges with the tools that will help them conduct disproportionate impact studies** using their own or publicly available data and **(3) present strategies that have the potential to mitigating disproportionate impact** and sample case studies of institutions who have used these strategies.

First, the guide will provide a review of the data available to examine disproportionate impact. We then offer a brief overview of how disproportionate impact presents itself in the context of each of the key SSSP activities including admissions, orientation, assessment and placement, counseling and advising (education planning), follow-up services (evaluation of student progress) and prerequisites. The guide offers several scenarios highlighting ways to use available data to inform the design and development of efforts to mitigate disproportionate impact in the delivery of each service, giving special attention to differences related to gender, race/ethnicity and age. For each SSSP activity, we also present and examine examples of successful strategies implemented at various community colleges both within and outside California. Finally, we outline a set of questions for each activity that will help readers begin to develop an action plan to address disproportionate impact on their campuses.

How To Use This Guide

We recommend users begin by reviewing the first 17 pages of the guide for a general overview of key issues that informed the development of this tool and to better understand the key definitions, general approach and relevant data sources and resources that were used to inform the guide's content and format. After reviewing this section of the guide, please feel free to jump to the specific SSSP service or services that are of most interest to you. Separate summaries have been completed for each key SSSP service and these standalone sections follow a similar outline and can be reviewed individually. Feel free to jump to the specific SSSP service or services that are of most interest to you. Separate summaries have been completed for each key SSSP service and these standalone sections follow a similar outline and can be reviewed individually.

The format, structure and content of the guide have been **designed to be relevant to a broad audience that includes SSSP staff, faculty, counselors, researchers, deans and senior administrators. Readers of this guide do not need to be researchers** or have extensive knowledge of research strategies or approaches. Rather, the resources and information highlighted in this guide can be used to help anyone with an interest in student success and educational equity investigate and monitor disproportionate impact as it relates to the context of their work at their institution.

Available Data Sources

This guide is intended to provide a foundation for the analysis of SSSP data through an equity lens. However, the guide is not exhaustive and does not include all possible approaches to examining disproportionate impact. Your college or district research office can provide additional guidance on determining and obtaining appropriate sample sizes, collecting appropriate data to respond to the research question, analyzing disproportionate impact data and exploring potential factors related to a disproportionate impact finding for a particular group of students. In addition, formal disproportionate impact studies related to assessment/placement and prerequisite validation should be conducted in collaboration with your college or district research personnel.

What data can be used to examine disproportionate impact?

Each California community college collects and submits information to the Chancellor's Office on students who receive assessment, orientation, counseling/advising and follow-up services. These data may be accessed via **Data on Demand**, a California Community College Chancellor's Office **DataMart** query on the MIS website (datamart.cccco.edu) and/or through **local data resources** (e.g., student information system or data warehouse). Data on assessment scores, placement and prerequisite information can be obtained through the college's or district's local student information system.

Each data source includes a number of capabilities and limitations. In general, local student information systems have the greatest breadth of data, including elements that are provided to the Chancellor's Office for Management Information System (MIS) reporting, as well as local data elements that may link to special programs or locally collected and reported information. The California Community College Chancellor's Office DataMart includes a variety of aggregate information on students and courses; however, the DataMart is limited to a standard set of queries that can only be disaggregated by specific, pre-set characteristics and only tracks cohorts for a specific subset of queries (e.g., basic skills cohorts, transfer cohorts). The levels of information available via each of the three main data sources are illustrated in *Figure 1. SSSP Data Sources*. In addition, to orient you to each of the data sources and the types of analyses that may be conducted with each, *Table 1. Capabilities and Limitations of Various SSSP Disproportionate Impact Data Sources* summarizes the capabilities and limitations of each data source.

Figure 1. SSSP Data Sources

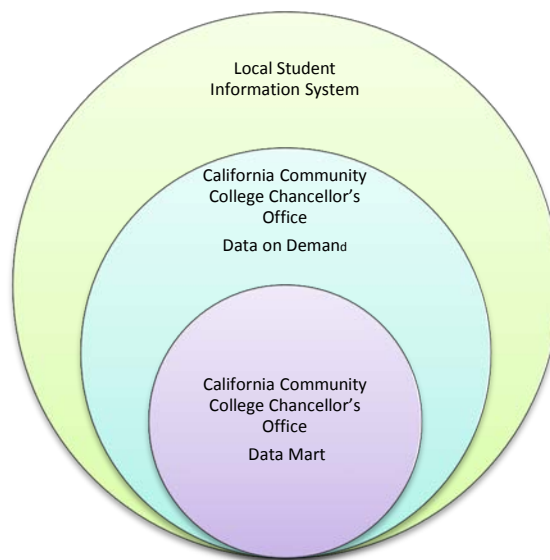


Table 1. Capabilities and Limitations of Various SSSP Disproportionate Impact Data Sources

Data Source	Capabilities	Limitations
CCCCO DataMart	• Provides publicly available data • Offers accessible data element dictionary and query parameters • Has ability to disaggregate data by demographic variables • Is exportable to Excel • Makes data available on orientation, counseling, follow-up • Includes standard MIS data elements	• Offers data output in only aggregate form; no unitary data • Has no cohort tracking capability for students who utilize SSSP services • Provides no data on assessment scores/placement, prerequisites or admissions • Does not permit data to be screened or limited by exempt status or first-time status
CCCCO Data on Demand	• Has ability to link data from multiple files via key variable • Provides unitary data (e.g., Student- or Enrollment-level) • Offers cohort tracking capability; includes access and outcomes data • Is exportable to .CSV format and imported into Excel or SPSS • Makes data available for orientation, counseling and follow-up • Includes standard MIS data elements • Includes access and outcomes data	• Requires access to secure Data on Demand site, typically very limited to a small number of IT and research personnel • Requires technical skills/familiarity with data element dictionary • Provides no data on assessment scores/placement, prerequisites or admissions
Local Student Information System/Data Warehouse	• Includes customizable queries using various data tables linked by key variable • Provides unitary data (e.g., student- or enrollment-level) • Offers cohort tracking capability • Is exportable to Excel or SPSS • Makes data available for all SSSP services • Includes access and outcomes data	• Requires secure access to system (typically IR or IT office) • Requires technical skills/familiarity with data element dictionary and database query tools or data warehouse • Depends on college or district researchers' workload

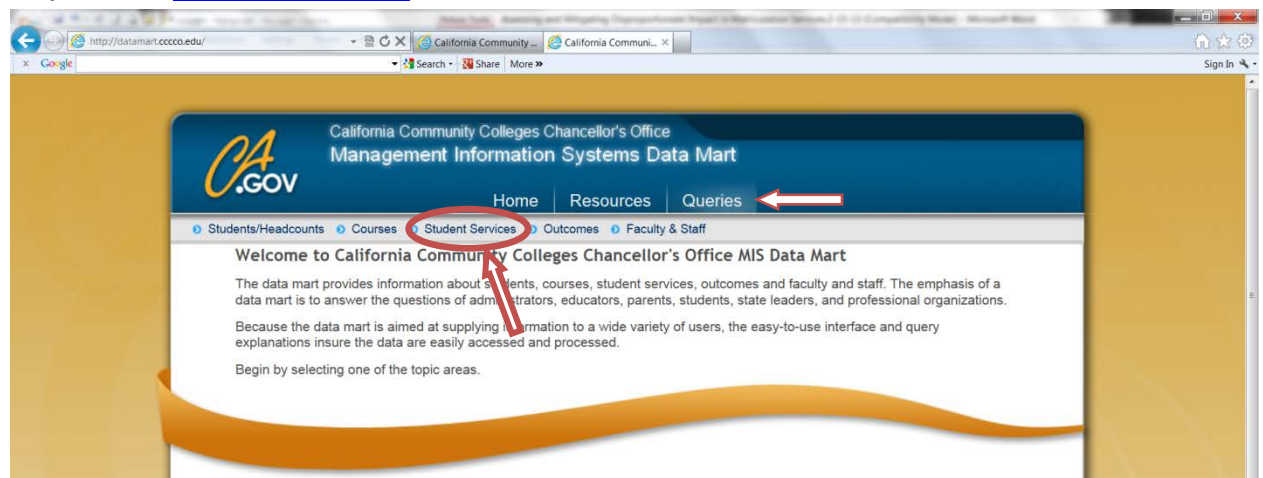
How can these data be accessed?

California community colleges have access to a variety of local and state data sources and resources related to disproportionate impact. We specifically describe how to access the Chancellor's Office DataMart and Data on Demand resources in detail below.

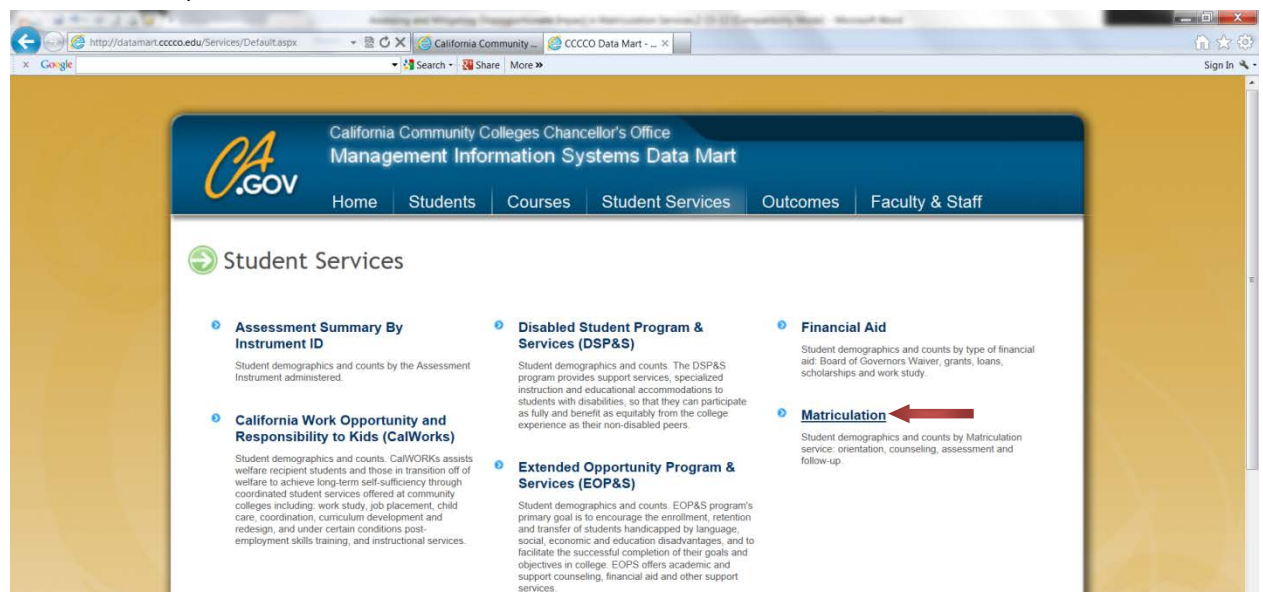
California Community College Chancellor's Office DataMart

To obtain data on SSSP services from the Chancellor's Office DataMart, point your browser to datamart.cccco.edu.

Step 1: Go to datamart.cccco.edu and click on "Queries," then "Student Services."



Step 2: Access the specific SSSP query tool you want to explore (e.g., "Matriculation" or "Financial Aid").



Step 3: Select the SSSP service of interest (orientation, counseling/advising, follow-up) and view the aggregate report, which contains the following rows:

- Student Count in the Term
- Matriculation Services Received in the Term
- Matriculation Services Received in Prior Terms
- Matriculation Services Data Not Reported in Term (as shown below).

Select your query parameters and view the aggregate data. After the table is populated, you can crosstab the data by gender, ethnicity and age (each separately, as shown in Step 4 below) and export the data table to Microsoft Excel format.

The screenshot displays the 'Matriculation Services Status Report - Parameter Selection Area' in the CCCC Data Mart. The interface includes dropdown menus for 'Select State-District-College' (set to 'Statewide Search'), 'Select District-College', 'Select Term' (set to 'Fall 2011'), and 'Select Matriculation Services' (set to 'Orientation'). A red arrow points to the 'View Report' button. Below the selection area, there are options to 'Export To' (Excel, CSV, Text), 'Records Per Page' (10), and layout preferences (Simple Layout, Advanced Layout).

The 'Matriculation Services Status Report - Data & Format Area' shows a table with the following data:

Report Area	Matriculation Services Summary		
	Student Count (Credit)	Student Count (Non-Credit)	Student Count (Pre-Enrollment)
State of California			
Students Count In The Term	1,538,085	195,997	145,123
Orientation Services Received During The Term	133,242	22,997	48,043
Orientation Services Received Prior Terms	639,439	41,604	

Step 4: Disaggregate the matriculation data by student demographics using the “Update Report” feature.

The screenshot displays the 'Matriculation Services Status Report - Data & Format Area'. It includes a table with the following data:

Matriculation Services Summary			
	Fall 2011		
	Student Count (Credit)	Student Count (Non-Credit)	Student Count (Pre-Enrollment)
State of California			
Students Count In The Term	1,538,085	195,997	145,123
Orientation Services Received During The Term	133,242	22,997	48,043
Orientation Services Received Prior Terms	639,439	41,604	
Matriculation Services Data Not Reported In Term	77,207	14,182	

Below the table is the 'Report Format Selection Area - Check field to include in the report.' with checkboxes for District Name, College Name, Gender, Age Group, and Ethnicity. A red arrow points to the 'Update Report' button.

California Community College Chancellor's Office Data on Demand

The Chancellor's Office MIS referential files, available via [Data on Demand](#), also contain a wide range of information on students but only include data elements reported for MIS purposes. To obtain data on SSSP services via Data on Demand, you will need a secure login and password. Contact your planning and research and/or information technology office to request access. However, given the sensitive nature of the information available via Data on Demand, note that access will likely be limited to a small number of individuals at each college. Therefore, **this type of access may be best suited to those who are familiar with MIS data and/or regularly work with student data**, such as research and information technology personnel.

For those who have access to the Data on Demand site, you can request the “Student Matriculation” file and “Student Basic” file, as well as any “Student Enrollment” files you wish to examine for cohort tracking purposes (e.g., first term of enrollment following services). Once the files are available, download the Student Matriculation file and begin working with the data. The file will contain (among other things) information on students’ exemption status and SSSP services received, such as orientation, assessment, counseling, education planning services and follow-up services. You can link the Student Matriculation and Student Characteristics files by the California Community College Chancellor's Office student identifier using software such as Microsoft Excel or SPSS. You may also follow a similar procedure to track cohorts of students beyond the SSSP service point using the Student Term files appropriate to the research question(s) for each service.

Snapshots of Success: Folsom Lake College



Local Data from Student Information System

To obtain the appropriate data from local sources, you will need, at minimum, student demographics (e.g., gender, ethnicity, age) and status pertaining to each SSSP service received. Remember to limit your data to include first-time, non-exempt

students³ in a given cohort (e.g., fall 2010). Each student is then categorized as “received services” and “did not receive services.” Note: consider excluding from the study students who refused the SSSP service. To track students who accessed services, you will also need student enrollment records for at least their first and second semesters of enrollment.

While disproportionate impact is most commonly discussed in the context of student access, it can also apply to predictive validity issues in placement tests and prerequisites, as well as to student outcomes in general. Although there are various approaches to measuring disproportionate impact in terms of outcomes (e.g., testing for statistical significance, calculating effect sizes, comparing odds ratios), this guide seeks to provide suggestions for some basic analyses. These other, more advanced options are available as analytical alternatives for audiences who are more familiar with these methods; however, these methods are not discussed in detail in this guide. Instead, this guide focuses on relevant literature, data analysis procedures, sample research questions, relevant mitigation strategies and case studies are discussed within each SSSP service section of this guide.

³ Per § 55532, each district may designate certain students as exempt from orientation, assessment, and/or counseling and advising services. Exempt students may include those who have earned an associate degree or higher.

ASSESSING DISPROPORTIONATE IMPACT RELATED TO SSSP

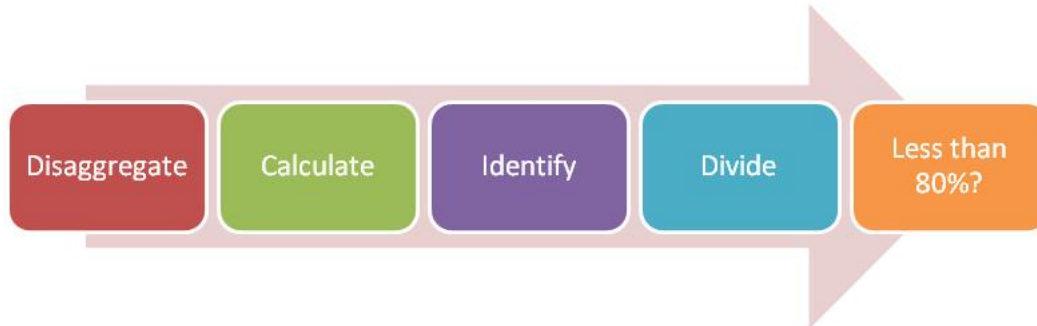
Whichever data source you decide to use, it is important to **follow the same guidelines for the disproportionate impact analysis**. For the purposes of this guide, the **preferred criteria for determining if disproportionate impact has occurred is the Equal Employment Opportunity Commission (EEOC) guideline for disparate impact ratios, or the 80 percent rule**, outlined in more detail below:

The 80 Percent Rule

The California Community Colleges rely on the Equal Employment Opportunity Commission (2010) disparate impact benchmark, or “80 percent rule” to determine if there is evidence of disproportionate impact. This benchmark has long been applied to assessment and placement validation studies, which require an examination of disproportionate impact and may be applied to any SSSP service described in this guide. The 80 percent rule refers to the benchmark for the ratio of selection or participation rates between a minority group and the reference group. The Equal Employment Opportunity Commission (2007) defines this as the ratio of the selection rate for ethnic group divided by the selection rate for the group with the highest rate. In community colleges, this ratio has been defined as the minority group placement or participation rate divided by the majority group placement or participation rate. If this ratio falls below 80 percent, evidence of disproportionate impact exists for the minority group. When there is not a clear majority or reference group, such as in an ESL population, the overall placement or participation rate may be used as the reference rate (Glasnapp and Poggio, 2001).

Calculating Disproportionate Impact Ratios Using EEOC Guidelines

To determine if disproportionate impact has occurred for a group, take the following steps:



1. **Disaggregate** the **target population of students** (e.g., first-time applicants for a given term) by gender, age and ethnicity and calculate percentages for each group (e.g., 50 percent female, 50 percent male).
2. **Calculate** the **percentage of students within each group** that received a particular service (e.g., applied for admissions prior to the deadline, is placed into a course or level, or has met the prerequisite skill level for a course).
3. **Identify** the majority or **reference group and use that group's percentage as the benchmark** (e.g., if female students represent the majority, use the percentage of female students who accessed services as the benchmark). Traditional reference groups include males, white students and students 18 to 24 years of age (for additional information, see text box *Reference Groups*).
4. To obtain the ratio, **divide** the percentages (of students who received the service or placement) for **each other student group by that of the majority or reference group** (e.g., female, as in the example in Step 3 above).
5. **Highlight** any group with **a ratio of less than 0.80 or 80 percent** (See text box, *Sample Size Consideration*, for additional information on how to help ensure that your analysis is valid.)

The ratio can be calculated using the following equation:

Disproportionate Impact	=	$\frac{\text{the rate for the given group}}{\text{the rate of the reference group}}$
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For example, if the majority ethnic group is white students and 60 percent of white students accessed the service, 60 percent would serve as the reference rate. Divide each other group's rate by 60 percent. So, if 50 percent of Hispanic/Latino students accessed the service, divide 50 by 60 to obtain the ratio for Hispanic/Latino students ($50 \div 60 = 83$ percent).

Since the ratio for Hispanic/Latino students is greater than 80 percent, there is no evidence of disproportionate impact for this group.

The California Community College Chancellor's Office standard for reference groups in disproportionate impact studies is largely based on traditional or historical majority groups (California Community College Chancellor's Office, 2012c): males (when data are disaggregated by gender), white students (when data are disaggregated by ethnicity) and students 18 to 24 years of age (when data are disaggregated by age). These reference groups are noted throughout the examples provided in this guide. However, these groups may not represent the numerical majority at your college, or in some cases, there may not be a clear majority group at your college.

If either of these scenarios applies, you may want to use the overall rate as the reference for your disproportionate impact analysis. In addition, in some instances, the traditional or numerical majority group may not be an appropriate reference group, as the rate for this group may be markedly lower than that of other groups. In this instance, there may be insufficient evidence of disproportionate impact because each of the other groups is being compared to an artificially low reference group.

With this in mind, you may wish to conduct additional comparisons using the overall rate as the reference. To utilize the overall rate as the reference, divide the rate of each group by the overall rate to determine if disproportionate impact has occurred. Any group with a ratio below 80 percent of the overall rate would be considered an impacted group.

Sample Size Considerations

Exercise caution when highlighting ratios for particularly small groups of students at your college, as the data collected may not be sufficient to determine if disproportionate impact has occurred. For example, when a ratio of less than 80 percent is observed for a group with a cell size (or number) of just 25 students, the ratio may be a bit misleading and may not be reflective of the larger group. A minimum cell size of 60 for each group (e.g., males, age 30-39, Pacific Islander) is a commonly used practice for examining disproportionate impact for a specific group. If you are concerned about sample sizes, you may want to expand your cohort to include a larger number of students overall (e.g., fall 2009 and fall 2010 instead of just fall 2010). In some cases, it may also be appropriate to combine certain categories if cell sizes are rather small for specific subgroups. However, this method should only be used when combining the categories is contextually sound. For example, if the cell sizes for the age categories of 40 to 49 and 50 and over are rather small, one might combine these two categories into one category for 40 and over before conducting the disproportionate impact analysis.

CONSIDERING DISPROPORTIONATE IMPACT WITHIN THE CONTEXT OF SSSP

The following pages will **explore disproportionate impact within the context of each of the key SSSP components including admissions, assessment and placement, orientation, counseling and advising (including educational planning), follow-up services (evaluation of student progress) and prerequisites**. Table 2 provides brief descriptions of each of the SSSP services as they are described on various pages of the *SSSP Handbook* (California Community College Chancellor's Office, 2011b).

Table 2: Description of Key SSSP Services

SSSP Service	Description from SSSP Handbook (CCCCO, 2011b)
Admissions	A comprehensive application process designed to identify needs, abilities and accomplishments (p. 2.3)
Assessment and Placement	Holistic process through which each college collects information about students in an effort to facilitate their success by ensuring their appropriate placement into the curriculum (p. 2.4)
Orientation	Information provided to students including, but not limited to, the college's programs, services, facilities, grounds, academic expectations and institutional procedures (p. 2.8)
Counseling and Advising (educational planning)	The purpose of counseling and advisement is to address students' needs with respect to their strengths and areas of improvement and to facilitate a match between the services that a student may need and the resources available on campus and in the community (p. 2.10)
Follow-up (evaluation of student progress)	Post-enrollment evaluation of every student's progress in order to detect early indications of academic difficulty (p. 2.16)
Prerequisites	Conditions of enrollment that students are required to meet prior to enrollment in particular courses and programs (p. 2.19)

For each service, a **brief description of relevant literature and research** will be summarized along with some **examples of key data that can be accessed and how these data can be analyzed to explore and monitor disproportionate impact** regarding ethnicity, gender and age (see text box, *Examining Disproportionate Impact for Other Relevant Groups*). These sections will be followed with **information on how some colleges have restructured or begun offering these services to address disproportionate impact**. Given that in some cases few evaluative studies have been done on the effectiveness of these services as they relate to addressing issues of disproportionate impact, we **highlight programs and practices that attempt to support a large number of students**—particularly those student groups who are often not

successful in realizing their educational goals—as they begin their postsecondary education.

Examining Disproportionate Impact for Other Relevant Groups

While the regulations for assessment and prerequisite validation specify the groups for which disproportionate impact must be examined (i.e., ethnicity, gender, age and disability), you may find it appropriate to examine access and success data through additional lenses. For example, if your college is interested in implementing a new registration policy, you may find it important to examine disproportionate impact by language spoken or student income status, in addition to the required disproportionate impact categories of gender, ethnicity, age and disability. Other student characteristics that may be particularly relevant to your college and research question include, but are not limited to:

- Income status (via financial aid indicators or self-reported information)
- Region of residence (e.g., zip code, in- or out-of-district, census tract)
- Location of course enrollment (e.g., regional center, online)
- Veteran status
- First-generation status
- Online student status
- Academically underprepared status

IMPACT: Admissions

The Purpose of Admissions

“The purpose of the admissions component is for colleges and districts to ensure that access to the community college is provided to students by a comprehensive application process designed to identify needs, abilities and accomplishments” (Calif. Comm. College Chancellor’s Office, 2011b, p. 2.3).

In the context of admissions, where is disproportionate impact an issue?

A key admissions issue is *when* students register for classes. Most colleges will allow students to enroll up to 15 days after classes begin, a practice that appears to put many students at a disadvantage. Some research asserts that students who register late are more likely to drop classes, less likely to pass their classes and less likely to persist to

completion (CCSSE, 2012; Diablo Valley College, 2004; Freer-Weiss, 2004; Smith, Street & Olivarez, 2002; South Texas College, 2006). Many students who register late are often academically underprepared (Freer-Weiss, 2004), African American (Moore, Shulock, Ceja & Lang, 2007); older (Freer-Weiss, 2004) and male (Freer-Weiss, 2004; Safer, 2009). While late registration allows more students to have access to postsecondary education, these studies raise questions about how these policies might simultaneously impact their success.

At the same time, some administrators are concerned that ending late registration might be counter to community colleges' commitment to maintaining equity and open access while simultaneously decreasing the number of Full Time Equivalent Students (FTES) that support each college's overall revenue. Moreover, the research on the benefits of ending late registration is mixed. One study at a Texas community college found that the elimination of late registration would have shut out over 85,000 students who successfully passed their courses, but only about 26,000 who would have received non-passing grades (Smith, Street & Olivarez, 2002). Another study of community college students found no correlation between late registration and students' academic performance and retention (Angelo, 1990). Even among institutions that have ended late registration, this structural change appears to have only short-term positive effects on students' grades, course completion and term-to-term retention (Sinclair Community College, 2003).

Finally, some research suggests that students' individual characteristics, particularly those of underprepared and underrepresented students, may have greater influence on their academic success than institutional policy changes designed to promote their achievement (Bailey, Calcagno, Jenkins, Kienzl & Leinbach, 2005). This study implies that changes in admissions deadlines may have limited impact on advancing student success.

What research questions can we ask to explore disproportionate impact in the admissions process?

The admissions process is the first point of contact a student has with the college. When and how a potential student learns about and whether she or he completes the required steps to be officially enrolled as a student may be affected by many factors. Various practices and policies may serve to adversely (or in some case, positively) affect certain groups of students. Below are some examples of admissions-related practices and policies that may differentially affect certain student groups, and, thus, could be included in a disproportionate impact study:

- Admissions/application deadlines
- Class registration deadlines
- Changes in drop policies (such as fee payment deadlines)
- Uses of online versus in-person admissions and registration services

For a disproportionate impact study, there are several possible research questions that could be considered. In terms of access, for example, one might consider examining registration dates for different demographic groups (i.e., do certain groups have higher rates of late registration than others?). Given the literature showing that late registrants may be less likely to succeed in college (Freer-Weiss, 2004; Safer, 2009), one also might explore course success or retention by demographics among students who registered late for classes. We provide an example of an outcomes-focused research question related to student admissions below.

Sample Research Question: Among late registrants, do success rates differ for specific demographic groups?

What data can be used to explore disproportionate impact in the admissions process?

Snapshots of Success: Modesto Junior College



In order to respond to the above research question, you will need to access data from your college's student information system or Data on Demand via the "Student Enrollment" file. Note that if you access Data on Demand to respond to the research question, the "Enrollment Effective Date" data element may

be used to separate students who enrolled in the class both by and after the course start date. If your college intends to define "on-time" and "late" registrants differently, you may need to access local data to respond to the research question. Regardless of the data source you access, keep in mind that you may need to examine multiple terms to obtain adequate data to respond to the research question. To determine if disproportionate impact has occurred for one or more particular student groups, the following data elements should be extracted:

- Enrollment status (first-time student indicator)
- Student demographics (gender, ethnicity, age)
- Course registration or enrollment effective date
- Course start date
- Course enrollment
- Final grade data for the target term

What relevant analyses can be conducted to examine disproportionate impact in the admissions process?

To explore the Sample Research Question, start by operationally defining “early/on-time registrants” and “late registrants.” For example, if your college or district is considering implementing a registration deadline that is equivalent to the class start date, you can group students based on whether their registration date for the class is on or before the class start date or after the class start date. Consider the following approach:

- Use Microsoft Excel (pivot tables) or SPSS to aggregate the enrollment-level data for each of the cohorts; to respond to the research question, select only the students who registered after the class start date
- Compare the first-term course success rates for each gender, ethnic and age group
- Use the 80% rule to determine if there are differences between course success rates for different demographic groups

Below are three sample tables illustrating course success rate comparisons among late registrants by gender, ethnicity and age. For this particular study, an additional benchmark of on-time registrant course success is provided at the bottom of the table.

Sample Table 1a. Late Registrant Course Success Rates by Gender

Gender	Late Registrants		Enrollments	Course Success Rate	Ratio
Female	1,510	50%	5,148	58%	116%
Male	1,490	50%	4,464	50%	100%
<i>Total/Overall</i>	<i>3,000</i>	<i>100%</i>	<i>9,612</i>	<i>54%</i>	<i>--</i>
<i>On-Time Registrants</i>	<i>17,534</i>	<i>--</i>	<i>55,254</i>	<i>67%</i>	<i>--</i>

Shaded group represents the reference group

In the above table, the success rate for females, the traditional minority group, is 58 percent. The success rate for female students was divided by that of the reference group (males, 50 percent) to calculate the ratio, and the result is 116 percent. Since the

ratio for females far exceeded 80 percent threshold, there is not sufficient evidence of disproportionate impact by gender.

Sample Table 1b. Late Registrant Course Success Rates by Ethnicity

Ethnicity	Late Registrants		Enrollments	Course Success Rate	Ratio
African American	240	8%	665	50%	88%
American Indian/ Alaskan Native	30	1%	100	40%	70%
Asian	300	10%	933	48%	84%
Filipino	120	4%	355	42%	74%
Latino	930	31%	2,781	52%	91%
Multi-Ethnicity	180	6%	614	58%	102%
Pacific Islander	30	1%	79	51%	89%
Other, non-white	120	4%	374	60%	105%
White	1,050	35%	3,711	57%	100%
<i>Total/Overall</i>	<i>3,000</i>	<i>100%</i>	<i>9,612</i>	<i>54%</i>	<i>--</i>
<i>On-Time Registrants</i>	<i>17,534</i>	<i>--</i>	<i>55,254</i>	<i>67%</i>	<i>--</i>

Shaded group represents the reference group

Bolded rows identify groups for which disproportionate impact has occurred

In the table above, white students represent the traditional as well as the numerical majority among late registrants and therefore serve as the reference group. The success rate for white students is 57 percent, and the success rate for each other ethnic group is divided by this rate or order to obtain the ratio. Two groups, American Indian/Alaskan Native students and Filipino students, have ratios less than 80 percent (70 percent and 74 percent, respectively), indicating that there is evidence of disproportionate impact among these two groups. However, the results for American Indian/Alaskan Native students should be interpreted with caution, as this group consists of a particularly small number of students. Given the general rule of a minimum cell size of 60, the data for this group may not be representative of the larger enrolled population.

Sample Table 1c. Late Registrant Course Success Rates by Age

Age Group	Late Registrants		Enrollments	Course Success Rate	Ratio
Under 18	120	4%	173	60%	103%
18 to 24	1,620	54%	6,798	58%	100%
25 to 29	390	13%	1,053	44%	76%
30 to 34	240	8%	576	56%	97%
35 to 39	180	6%	320	59%	102%
40 to 49	240	8%	432	64%	110%
50 and over	210	7%	260	68%	117%
<i>Total/Overall</i>	<i>3,000</i>	<i>100%</i>	<i>9,612</i>	<i>54%</i>	<i>--</i>
<i>On-Time Registrants</i>	<i>17,534</i>	<i>--</i>	<i>55,254</i>	<i>67%</i>	<i>--</i>

Shaded group represents the reference group

Bolded group identifies groups for which disproportionate impact has occurred

In the table above, students ages 18 to 24 comprise the both largest proportion of late registrants and the traditional majority and thus the reference group. The success rate for this group is 58 percent, and the success rates for all other age groups were divided by this rate to obtain the ratio. As the table shows, the ratio for students ages 25 to 29 was 76 percent, indicating that there is evidence of disproportionate impact among students ages 25 to 29. In other words, these students had lower rates of success than the majority group, students ages 18 to 24. Using the 80 percent rule, there is not sufficient evidence of disproportionate impact among students in any other age group.

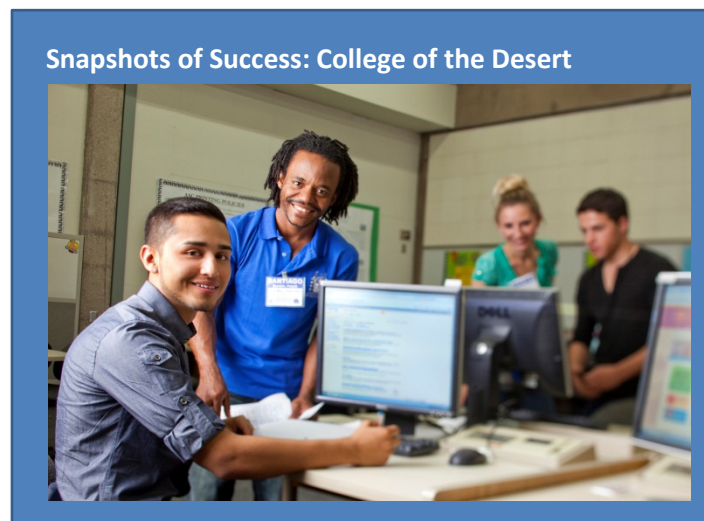
A study such as the one highlighted above would be well paired with an analysis of late registration by student demographics to answer whether certain groups were more likely to register late for their classes than the reference group. This analysis would provide the on-time registrant success rates as an additional benchmark for late registrants. A study that combines both of these components could provide helpful information for SSSP staff and leadership in targeting students who are more likely to register late and/or less likely to respond to outreach and support activities. In order to gain a better understanding of the issue at hand, key college constituents might explore the potential factors related to this finding and develop a plan to reduce the gaps for these students.

What are some additional research questions to explore disproportionate impact in the admissions process?

Below are some additional research questions related to admissions that you may want to consider, depending on the unique policies and issues of importance to your college or district. These questions can be explored using the data sources highlighted in this guide.

- Are certain student groups more likely to register for classes after the start of the term?
- Are specific student groups more likely to apply for admission after the application deadline?
- Are certain student groups more likely to be dropped due to new fee payment policies?
- Are certain student groups less likely to receive priority registration due to a new policy?
- Are students who register for classes after the first day of the term less likely to be retained in the subsequent term?

What strategies and approaches have colleges successfully implemented to mitigate disproportionate impact in the admissions process?



Although the research does not provide a definitive answer about whether late registration should be abolished, many colleges are identifying ways to encourage more students to complete the admissions process—application, registration, payment of fees and assessment—as early as possible so they are able

to purchase their books and supplies and be prepared to focus on school well before classes begin. For colleges that have ended late registration, some have implemented new condensed courses to ensure that all students have access. For example, San Jacinto College (Texas) offers “[Take 2](#)” courses, which provide another opportunity for

students to enroll in a compressed course that begins after the end of registration, but allows them to complete all the required content within the term. Other colleges are using the days before classes begin to offer specialized support and enrichment services to help students be ready—socially, academically and financially—to focus on their educational journey.

Administrators at Temple College realized that students who registered late were more likely to be underprepared for assessment testing, suspended or to end up on academic probation (Rose and Sora, 2012a, 2012b), which led to a decision to end late registration. Instead, during the week before classes, new students are mandated to attend one of six new student orientations. The institution offers other one-hour sessions with a “class built in” that are approved by a senior administrator: e-Learning, Money Management, Student Life, Advising for Transferring Students, Financial Aid Satisfactory Academic Progress and Reading & Writing Seminars. Many faculty volunteer to help out at the orientation sessions and some offer specialized sessions of their own (Rose and Sora, 2012a, 2012b). If a student cannot attend a scheduled session, online orientations are being redesigned to provide these students with access to relevant information.

Assessment testing also occurs during Zero Week. Free academic “boot camps” run by basic skills math, English and reading instructors are offered to help students brush up on key skills and to prepare for the test (Rose and Sora, 2012a, 2012b). Students can retest during the week and those who earn a better score can move directly into college-level coursework (Rose and Sora, 2012a, 2012b).

As a result of this policy change, students were more likely to have their textbooks and supplies, to be aware of the impact of dropping classes on financial aid and to attend classes from the very start of the semester which is linked to fewer schedule changes and Satisfactory Academic Progress suspensions (Rose and Sera, 2012a, 2012b). The decrease in the number of students that could enroll was recouped by the number of students who persisted beyond their first semester (Rose and Sora, 2012 a, 2012b). Overall, ending late registration has been linked to positive eight-week semester enrollment numbers, student and faculty satisfaction and increased fall-to-spring persistence retention and GPAs (Rose and Sora, 2012a, 2012b).

How can colleges use evidence on disproportionate impact for action planning and improvement of admissions services?

In short, generating and observing data alone is not enough to address any disproportionate impact that you might uncover in your college’s admissions services.

To fully examine the topic, the data you produce and the analyses you perform based on the guidelines above should be discussed with a diverse group of college stakeholders, including those who work most closely with admissions policies and practices. We have designed the following questions to help administrators, faculty and researchers structure a conversation about disproportionate impact in the admissions process that includes (1) determining which questions, data and analysis to pursue and exploring the information you generate; (2) designing a plan of action; (3) implementing a related change process and (4) monitoring and communicating about progress.

Identifying and Exploring the Issue

- How are you currently monitoring disproportionate impact in the admissions process on your campus?
- Who needs to be involved in exploring data to assess and mitigate disproportionate impact in admissions services?
- Reflecting on the sample research questions offered above, what inquiry is most pertinent to your college in terms of mitigating disproportionate impact in the admissions process?
- Considering the data sources offered above, what information needs to be gathered in order to gain a fuller understanding of the issue and potential ways of reducing the impact on the affected groups of students?
- How might you apply the analyses outlined above at your college?

Planning and Designing Action

- In what ways do your data gathering and analyses highlight areas where disproportionate impact is occurring in the admissions process?
- Given the evidence, what change(s) are needed to address areas of disproportionate impact in admissions services? Which groups of students are likely to be affected or should be targeted by these changes?
- Who else needs to be informed about and/or involved in deciding what changes to make

Implementing Change

- Who needs to be involved to institute these changes?
- What kind of training or professional development is needed to help administrators, faculty and staff support changes to address disproportionate impact as it relates to admissions?
- What is the most appropriate timeline for implementing the proposed changes?

Monitoring the Impact

- How might you monitor disproportionate impact related to planned changes to admissions policies or practices at your campus?
- How often should available data be examined to note progress or a need for additional changes?
- Who will monitor the impact and communicate the results to related stakeholders?

IMPACT: Assessment and Placement

What is Assessment?

“Assessment is holistic and representative of the individual student as an entire entity, and not just a test score”

(California Community College Chancellor’s Office, 2011b, p. 12).

In the context of assessment and placement, where is disproportionate impact an issue?

Once admitted, California community colleges use a variety of tools to assess students’ abilities to successfully complete college-level work. Most colleges require that students complete written and computer-based assessments to evaluate students’ reading, writing and math skills. Scores on the test are used to place students to the appropriate level of coursework. However, one national study found overall that over one half of entering freshmen needed remediation and that for African-American and Latino students, the assessment process often results in a disproportionate number being placed into non-transferrable and non-credit bearing courses. For example, 67.7 percent of African-Americans and 58.3 percent Latino community college students placed into basic skills level courses compared to 46.8 percent white and 48.9 percent of students who were identified as ‘other’ (Complete College America, 2012, p. 6) (see text box above, *Ethnic Group Differences and Disproportionate Impact*, on Page 28). Remediation was also high across various age groups: 54.7 percent for 17 to 19 year olds, 51.6 percent for 20 to 24 year olds and 42.5 percent for those over 25 (Complete College America, 2012).

A scan of California community college placement test results found that over 70 percent of students tested were placing into basic skills level math and 42 percent of students were placing into basic skills level English (RP Group / Center for Student

Success, 2005). Unfortunately, many students who test and then enroll into basic skills courses do not successfully complete these courses (i.e., passing with a grade of “C” or better). Roughly 60 percent in basic skills level English and one half of students who enrolled in basic skills level math were successful (Hill, 2008). Also few of these students persist or advance. One study found that about 50 percent of basic skills level students did not return to college the following fall and about 50 percent of those that had successfully completed a credit-bearing basic skills level course completed “a higher level course in the same discipline within three years” (Hill, 2008, p. 7). Among students who enrolled in non-credit basic skills courses, less than 10 percent advanced to and completed even one “degree applicable credit course” (Hill, 2008, p. 7). Even after six years, research suggests that many community college students who are placed into non-college level classes are unable to earn a degree and/or transfer (Bailey and Cho, 2010) suggesting that developmental education may be more of a “dead end” (Lewin, 2012) than an on-ramp to a successful postsecondary educational journey (Bailey, 2009).

Ethnic Group Differences and Disproportionate Impact

“If an ethnic group is represented in college-level courses after basic skills coursework in a smaller proportion than other ethnic groups, a disproportionate impact is said to occur and colleges are asked to explain why this has occurred and to develop and implement appropriate intervention strategies to correct the situation”

(California Community College Chancellor’s Office, 1989, p. 4.1).

However, several studies have questioned the ability of a test score to accurately predict how well students will do in college (Scott-Clayton, Crosta & Belfield, 2012). Research conducted by staff at the Community College Research Center (CCRC) found that many students with placement scores below a hypothetical college-level cut score actually passed the relevant college-level course with at least a grade of B (Scott-Clayton, Crosta & Belfield, 2012) (see text box, *What is Assessment?*). The Community College Research Center also found that the tests may more accurately predict which students will pass math; the test studied had less predictive validity when it came to English. Furthermore, research suggests that high school grades were more predictive of college success than assessment test scores.

According to the study, “High school GPA is an extremely good and consistent predictor of college performance, and it appears to encapsulate all the predictive power of a full high school transcript in explaining college outcomes” (Scott-Clayton, Crosta & Belfield, 2012, p. 39). In line with these findings, several researchers and practitioners are recommending the use of multiple measures, which is defined as the use of test scores in combination with other information such as high school grades and standardized test scores (Burdman, 2012; Fuenmayor, Hettts & Rothstein, 2012; Hett, Fuenmayor & Rothstein, 2012; Scott-Clayton, Crosta & Belfield, 2012). Other researchers have highlighted the importance of targeted interventions to help address specific skill gaps and test preparation that helps students review items where they need to refresh their skills before taking these high stakes tests (Burdman, 2012; College Board, 2012; Venezia, Bracco & Nodine, 2010).

Many students could benefit if they knew they would be required to take an assessment test, the implications of certain scores on the test and the impact of their scores on their time to degree completion (Burdman, 2012; Venezia, Bracco & Nodine, 2010).

What research questions can we ask to explore disproportionate impact in the assessment and placement process?

In California community colleges, the issue of disproportionate impact is perhaps most commonly associated with the assessment and placement process and prerequisites. The procedures for examining disproportionate impact in assessment and placement are well documented (California Community College Chancellor’s Office, 1991; Glasnapp and Poggio, 2001). However, the approaches used by colleges and districts across the state vary considerably (California Community College Chancellor’s Office, 2012c). Still, the central theme of disproportionate impact analyses in assessment and placement is to determine if a particular group is placed at a disadvantage by the college’s assessment instrument, policies and practices. There are several assessment and placement sub-topics that may be the subject of disproportionate impact analysis, including the following:

- Access to assessment placement services
- Initial writing placement and progression to transfer-level English
- Initial reading placement and progression to transfer-level English
- Initial math placement and progression to associate-level or transfer-level math
- Initial English as a Second Language (ESL) placement and progression to transfer-level English

As with other elements of SSSP, the issue of access is often the first to investigate. We provide a sample research question related to access below.

Sample Research Question 1: Is any student group disproportionately less likely to complete an assessment/placement test?

Another key question might focus on student placement.

Sample Research Question 2: Does any student group place into basic skills English courses at a disproportionately high rate?

What data can be used to explore disproportionate impact in the assessment and placement process?

In order to address the first research question of whether certain students at your college or district are disproportionately less likely to complete an assessment or placement test, you can access relevant data from the following sources:



- Local student information system
- Chancellor's Office Data on Demand
- Chancellor's Office DataMart

The Chancellor's Office collects data on whether a student completed an assessment test as part of the placement process but does not collect assessment score and

placement data elements. If you are utilizing DataMart or Data on Demand, you can only determine if students received assessment and placement services for one or more subject areas (e.g., English, ESL, math); if you access local data, you may be able to break down assessment and placement services further.

The second research question may be undertaken in the context of assessment validation and requires data from the college or district student information system, as the Chancellor's Office does not store detailed assessment data in its MIS database. It is

also important to note that any evidence of disproportionate impact noted during the assessment validation process requires the development and documentation of a formal plan to reduce the impact on the affected group of students.

For the purposes of this guide, we will use the first research question as our example. To explore the second research question, we recommend working with your local researcher in using Design 12 in [Assessment Validation Project Local Research Options Project](#) (Dunlap, et al, 1991). This monograph presents a research design that outlines how to examine disproportionate impact related to placement practices and policies.

What relevant analyses can be conducted to assess disproportionate impact in the assessment and placement process?

To explore Sample Research Question 1, begin by querying assessment placement usage and demographic data for a specific cohort of first-time students (e.g., fall 2010 first-time students) using any of the three data sources described above. Then you will need to follow these steps:

- Categorize each student as “received placement services” or “did not receive placement services”
- Generate crosstabs of assessment placement status by gender, ethnicity and age; note that for a formal disproportionate impact analysis of placement, student disability status must be included as a demographic area for analysis
- Use the 80 percent rule to determine if disproportionate impact exists for any student group

The crosstab tables should look similar to the ones that follow.

Sample Table 2a. Assessment Placement Services Received by Student Gender

Gender	First-time Fall 2011 Students		Students Receiving Assessment Placement Services		Ratio
Female	1,044	58%	722	69%	108%
Male	756	42%	484	64%	100%
Total/Overall	1,800	100%	1,206	67%	--

Shaded group represents the reference group

As the table above shows, 64 percent of male students, the traditional reference group, received assessment placement services; 69 percent of female students (or 108 percent of the rate for male students) received assessment placement services. Because the ratio for the minority group (female students) is greater than 80 percent, there is not sufficient evidence of disproportionate impact by gender.

Sample Table 2b. Assessment Placement Services Received by Student Ethnicity

Ethnicity	First-time Fall 2011 Students		Students Receiving Assessment Placement Services		Ratio
African American	198	11%	126	64%	82%
American Indian/Alaskan Native	18	1%	8	44%	56%
Asian	288	16%	181	63%	81%
Filipino	126	7%	76	60%	77%
Latino	522	29%	321	61%	78%
Multi-Ethnicity	54	3%	38	70%	90%
Pacific Islander	36	2%	23	64%	82%
Other, non-white	36	2%	27	75%	96%
White	522	29%	406	78%	100%
<i>Total/Overall</i>	<i>1,800</i>	<i>100%</i>	<i>1,206</i>	<i>67%</i>	<i>--</i>

Shaded group represents the reference group

Bolded group identifies groups for which disproportionate impact has occurred

In the table above, white students serve as the reference group. Note that this group is identified as the traditional majority group even though white and Latino students are represented numerically at similar rates. Using the 80 percent rule, there is evidence of disproportionate impact among American Indian/Alaskan Native, Filipino and Latino students (ratios of 56 percent, 77 percent and 78 percent respectively when divided by the rate of the reference group), meaning these students were less likely than white students to complete the assessment process. Note that the American Indian/Alaskan Native student group represents a relatively small number of students.

Sample Table 2c. Assessment Placement Services Received by Student Age

Age Group	First-time Fall 2011 Students		Students Receiving Assessment Placement Services		Ratio
Under 18	36	2%	32	89%	129%
18 to 24	1,080	60%	745	69%	100%
24 to 29	306	17%	162	53%	77%
30 to 34	144	8%	95	66%	96%
35 to 39	108	6%	75	69%	100%
40 and over	126	7%	97	77%	112%
<i>Total/Overall</i>	<i>1,800</i>	<i>100%</i>	<i>1,206</i>	<i>67%</i>	<i>--</i>

Shaded group represents the reference group; **Bolded group** identifies groups for which disproportionate impact has occurred

In the table on Page 32, students ages 18 to 24 represent the largest group (as well as the traditional majority) of first-time students who completed the assessment placement process; thus, this group serves as the reference group. Of these students, 69 percent accessed placement services. As the table above shows, there is evidence of disproportionate impact among students ages 24 to 29 (ratio of 77 percent) which means that these students were less likely than traditional-age students (18 to 24) to complete the assessment and placement process.

What are some additional research questions to explore disproportionate impact in the assessment and placement process?

The obvious research question related to assessment validation is to determine if certain groups are disproportionately more likely to place into basic skills courses. In addition, it may be helpful to examine progress through the basic skills sequence among students who initially place into basic skills classes. Below are some additional research questions related to the assessment and placement process that you may want to consider, depending on the unique policies and issues of importance to your college or district. These questions can be explored using the data sources highlighted in this guide.

- Are certain student groups represented at disproportionately high rates in basic skills English, math, reading or ESL?
- Among students who place into basic skills English, reading, math and ESL courses, is any group disproportionately less likely to enroll in and complete the next course in the sequence?
- Among students who place into basic skills English, math or reading, are certain student groups disproportionately less likely to progress to transfer-level English or math?
- Are ESL students less likely to realize their educational goals?
- Are certain groups of students who place into basic skills courses less likely to be retained in the subsequent term at the college?

What strategies and approaches have colleges successfully implemented to mitigate disproportionate impact in the assessment and placement process?

One of the main concerns about the assessment process is the inability of testing to accurately diagnose the specific skills where remediation might be warranted. In some cases, students may simply need to learn, relearn or review and practice a particular skill with some additional academic support to be prepared to quickly move into and

successfully complete college-level coursework (Collins, 2009; Hern, 2012). Still others may simply need to prepare for the test to earn a score that reflects their current knowledge and skills (see text box, *Santa Monica's Prep2Test Program*). A key complaint is that current tests do not provide a clear diagnosis of the skills and knowledge a student needs; diagnostic tests can pinpoint specific areas where remediation may be needed. The [Postsecondary Education Readiness Test](#) has an optional diagnostic component for students who test into basic skills level courses "to identify specific deficiencies." This assessment identifies those areas where students need remediation. Some assert these skills could be taught in an accelerated module or short-term class instead of a full-term course saving the student both time and money (Collins, 2009).

Case Study: [Santa Monica's Prep2Test Program](#)

Santa Monica College found that three of four students had not prepared for the assessment test and were not familiar with the items that would be covered. The college suspected this lack of preparation and knowledge was likely having a negative effect on students' test results. Just preparing for the assessment test alone has been found to increase some groups' likelihood of placing into college-level English and math when compared to students who do not prepare (Burdman, 2012). Santa Monica College's Prep2Test site tells students to "save yourself time, money and frustration" (Prep2Test website) by preparing for the assessment test so that they are less likely to need to take basic skills level courses. The site encourages students to begin their preparation by reviewing a narrated set of slides that provide an orientation to the assessment and placement process, overview of test content, number and type of questions and preparation strategies and materials.

On other campuses, students that test at a pre-collegiate level take co-requisites (e.g., a course paired with supplemental instruction) that provide students with additional academic support and time to practice their skills (Collins, 2009; Completion College America, 2012). Other colleges are using multiple measures including high school transcripts, grades and test scores to help make placement decisions (Fuenmayor, Hetts & Rothstein, 2012; Rivera, 2012). Some colleges are also looking at non-cognitive factors and their potential effects on students' academic outcomes (Farr, Rotermund, Radwin & Robles, 2012; Fillpot, 2012).

Use and Usefulness of Non-cognitive Assessments

Some colleges are looking at non-cognitive conditions that determine how social and emotional factors and stressors might influence students' academic motivation and success (Duncan-Andrade, 2009; Farr et al., 2012; Karp, 2011). One example is the [Academy for Excellence \(ACE\)](#), a one-semester program that begins with an intensive two-week course focused on helping a cohort of at- or high-risk students become socially, academically and personally prepared for college followed by accelerated academic coursework. ACE uses a survey instrument called the [College Student Self-Assessment Survey](#) to examine the affects of the program on non-cognitive and affective factors such as academic self-efficacy, hope, college identity, mindfulness, leadership and other affective dimensions (Farr et al., 2012, p. 12; Navarro, personal communication, February 20, 2013).

A longitudinal evaluation found a correlation between the program's positive effects on non- cognitive factors and more positive academic outcomes (Farr et al, 2012). Students who finish the ACE program complete transfer-level English classes and transfer-level math classes at a much higher rate than a control group even though the program students do not receive any other support except what the college makes available to all students (Farr et al., 2012; D. Navarro, personal communication, February 20, 2013).

Similarly, Chaffey College has added items from the HOPE scale, which assess a student's motivation and ability to identify and plan long-term goals to the Accuplacer(Snyder, 1995; Grasgreen, 2012). An initial study of differences between high, average and low hope students found "meaningful differences" between the high and low hope groups of students on first semester completion, fall-to-spring term persistence and unit completion (Fillpot, 2012).

How can colleges use evidence on disproportionate impact for action planning and improvement of assessment and placement?

In short, generating and observing data alone is not enough to address any disproportionate impact that you might uncover in your college's assessment and placement process. To fully examine the topic, the data you produce and the analyses you perform based on the guidelines above should be discussed with a diverse group of college stakeholders, including those who work most closely with assessment and placement policies and practices. We have designed the following questions to help administrators, faculty and researchers structure a conversation about disproportionate impact in the assessment and placement process that includes (1) determining which questions, data and analysis to pursue and exploring the information you generate; (2)

designing a plan of action; (3) implementing a related change process and (4) monitoring and communicating about progress.

Identifying and Exploring the Issue

- How are you currently monitoring disproportionate impact in the assessment and placement process on your campus?
- Who needs to be involved in exploring data to assess and mitigate disproportionate impact in assessment and placement?
- Reflecting on the sample research questions offered above, what inquiry is most pertinent to your college in terms of mitigating disproportionate impact in the assessment and placement process?
- Considering the data sources offered above, what information needs to be gathered in order to gain a fuller understanding of the issue and potential ways of reducing the impact on the affected groups of students?
- How might you apply the analyses outlined above at your college?

Planning and Designing Action

- In what ways do your data gathering and analyses highlight areas where disproportionate impact is occurring in the assessment and placement process?
- Given the evidence, what change(s) are needed to address areas of disproportionate impact in assessment and placement? Which groups of students are likely to be affected or should be targeted by these changes?
- Who else needs to be informed about and/or involved in deciding what changes to make?

Implementing Change

- Who needs to be involved to institute these changes?
- What kind of training or professional development is needed to help administrators, faculty and staff support changes to address disproportionate impact as it relates to assessment and placement?
- What is the most appropriate timeline for implementing the proposed changes?

Monitoring the Impact

- How might you monitor disproportionate impact related to planned changes to assessment and placement policies or practices at your campus?
- How often should available data be examined to note progress or a need for additional changes?
- Who will monitor the impact and communicate the results to related stakeholders?

IMPACT: Orientation

Role of Orientation

Orientation provides “students with information including, but not limited to, the college’s programs, services, facilities, grounds, academic expectations and institutional procedures” (California Community College Chancellor’s Office, 2011b, p. 2.8).

In the context of orientation, where is disproportionate impact an issue?

Orientation is designed to provide incoming students with an introduction and overview to college life and to the supports that are available to help them be successful (see text box, *The Role of Orientation*). These sessions usually provide students with information about available resources and services, institutional policies and practices and degree and transfer requirements. Most colleges have face-to-face, group orientation sessions. Others also use social media (e.g., posting videos to YouTube) and computer-based platforms to provide online access to interactive modules that present the same information covered in group orientation sessions. At some colleges, new and transfer students are required to attend an orientation session or complete an orientation module before they can register for classes (e.g., [College of the Sequoias](#) and [South Texas College](#)).

To determine whether disproportionate impact is an issue in orientation, colleges would need to explore which students are likely to attend orientation sessions or complete orientation courses and whether there are differences in how these students do academically when compared to those students who do not receive any form of orientation services. One study found that students who enrolled in student success courses were likely to be younger, to receive federal grant aid, to be referred to and enroll in basic skills level classes and to be working towards transfer to a four-year institution (Cho and Karp, 2012).

What research questions can we ask to explore disproportionate impact in the orientation process?

A substantial body of research has associated the completion of an orientation program with successful outcomes in college (Derby and Smith, 2004; Glass and Garrett, 1995; Strumpf and Hunt, 1993; Zimmerman, 2000). For example, recent studies have linked

orientation participation with increased social integration and institutional commitment (Pascarella, Terenzini & Wolfe, 1986), retention (Hollins, 2009) and student learning (Mayhew, Vanderlinden & Kim, 2010). These studies point to the importance of orientation services in providing a foundation for student success. Furthermore, with the increased emphasis on fully matriculated⁴ students in the Student Success Act of 2012, orientation services will become an increasingly important factor in student access and success.

Several research questions may be posed in order to examine access to and outcomes following orientation services. An access-focused research question might be:

Sample Research Question: Is any student group disproportionately less likely to participate in orientation services?

What data can be used to explore the issue of disproportionate impact in orientation?

Data on student participation in orientation services may be accessed via the following sources:

- Local student information system or data warehouse
- Chancellor's Office Data on Demand
- Chancellor's Office DataMart

If you utilize local data or Data on Demand, it is recommended that you screen for first-time, non-exempt students. At a minimum, you will want to access students' orientation services status and demographic data. Any additional information needed will depend on the research question you are aiming to answer.

What relevant analyses can be conducted to monitor disproportionate impact in orientation?

To respond to the Sample Research Question above, follow these steps:

- Start by creating crosstabs of orientation status by gender, ethnicity and age, similar to those below
- Use the 80 percent rule to identify groups for which there is evidence of disproportionate impact

⁴ "Fully matriculated" refers to the students who receive assessment/placement, orientation, counseling and educational planning services.

Your data tables may look something like the following:

Sample Table 3a. Fall 2010 First-Time Student Orientation Status by Student Gender

Gender	First-Time Fall 2010 Students		Students Receiving Orientation Services		Ratio
Female	1,149	47%	597	52%	108%
Male	1,295	53%	622	48%	100%
<i>Total/Overall</i>	<i>2,444</i>	<i>100%</i>	<i>1,219</i>	<i>50%</i>	<i>--</i>

Shaded group represents the reference group

As shown in the table above, male students represent the traditional and numerical majority of all first-time fall 2010 students. These students serve as the reference group. The ratio of the orientation participation rate for females compared to the rate for males is 108 percent; thus, there is not sufficient evidence of disproportionate impact for female students.

Sample Table 3b. Fall 2010 First-Time Student Orientation Status by Student Ethnicity

Ethnicity	First-Time Fall 2010 Students		Students Receiving Orientation Services		Ratio
African American	196	8%	78	40%	75%
American Indian/Alaskan Native	24	1%	11	46%	87%
Asian	244	10%	130	53%	100%
Filipino	98	4%	51	52%	98%
Latino	733	30%	359	49%	92%
Multi-Ethnicity	147	6%	57	39%	74%
Pacific Islander	73	3%	35	48%	91%
Other, non-white	196	8%	108	55%	104%
White	733	30%	390	53%	100%
<i>Total/Overall</i>	<i>2,444</i>	<i>100%</i>	<i>1,219</i>	<i>50%</i>	<i>--</i>

Shaded group represents the reference group

Bolded rows identify groups for which disproportionate impact has occurred

In the table above, white students represent the traditional majority group and 53% of these students accessed orientation services. When all other groups were compared to this group, African-American students and students of multiple ethnicities had ratios less than 80 percent (75 percent and 74 percent, respectively). Therefore, there is evidence of disproportionate impact among African Americans and students of multiple ethnicities, meaning that these students were less likely than white students to access orientation services.

Sample Table 3c. Fall 2010 First-Time Student Orientation Status by Student Age

Age Group	First-Time Fall 2010 Students		Students Receiving Orientation Services		Ratio
Under 18	49	2%	39	80%	154%
18 to 24	1,368	56%	708	52%	100%
25 to 29	293	12%	99	34%	65%
30 to 34	220	9%	99	45%	87%
35 to 39	196	8%	80	41%	79%
40 to 49	171	7%	89	52%	100%
50 and over	147	6%	72	49%	94%
<i>Total/Overall</i>	<i>2,444</i>	<i>100%</i>	<i>1,219</i>	<i>50%</i>	<i>--</i>

Shaded group represents the reference group

Bolded group identifies groups for which disproportionate impact has occurred

In the table above, students 18 to 24 years of age comprise the largest percentage, and the traditional majority, of first-time students enrolling at the college; this group is designated as the reference group, with a participation rate of 52 percent. As the table shows, there is evidence of disproportionate impact among students between the ages of 25 and 29 (with a ratio of 65 percent) and students ages 35 to 39 (with a ratio of 79 percent), meaning that these students were less likely than traditional-age college students (students 18 to 24 years of age) to access orientation services.

Many factors may have contributed to the results observed in the example above, and each of these factors should be discussed with a wide range of campus stakeholders and examined with additional research and information gathering.

What are some additional research questions to explore disproportionate impact in orientation?

There are a number of additional topics that may be studied in the realm of orientation services. The following questions represent some possible directions for research on disproportionate impact in orientation services. These questions can be explored using the data sources highlighted in this guide.

- Among students who receive orientation services, is any student group less likely to enroll in the subsequent or concurrent term than the reference group?
- Among students who receive orientation services, is any student group less likely to succeed in their first semester than the reference group?

- Among students who receive orientation services, is any student group less likely to complete their first semester in good academic standing than the reference group?
- Among students who receive orientation services, are there differences among student groups in terms of term-to-term retention at the college?
- Do students from different groups disproportionately access online versus in-person orientation?

What strategies and approaches have colleges successfully implemented to mitigate disproportionate impact in orientation?

Some studies have found that short-term orientation programs have little effect on students' persistence when students' pre-college characteristics are considered (Pascarella and Terenzini, 1991). However, more comprehensive, credit-bearing "first-year experience" or "student success courses" are positively correlated with a variety of academic outcomes (e.g., grade point average, term-to-term persistence, credits attempted versus completed, degree attainment), even for students who may be

academically at-risk (Cho and Karp, 2012; Derby and Smith, 2004; Glass and Garrett, 1995; Hollins, 2009; Strumpf and Hunt, 1993; Zimmerman, 2000). These courses often not only help quickly acclimate and acculturate students to the college environment, but also inform students about available resources, help



with academic and career planning, offer study techniques, encourage peer-to-peer support and promote a personal commitment to the college (Cho and Karp, 2012; Kuh, Kinzie, Buckley, Bridges & Hayek, 2006). Course content also works to "facilitate students' transition to and success at college, with the ultimate goal of increasing student retention and academic achievement" (Cuseo, 1997, p. 3), while providing skills that encourage lifelong learning, build peer-to-peer connections and link students to needed supports (see text box on Page 42, *Orientation Courses at Virginia Community Colleges*).

Case Study: Orientation Courses at Virginia Community Colleges

The Virginia Community College System offers different types of one-credit orientation courses: (1) success skills, which focuses on helping students transition into college, (2) discipline-specific, which is linked to the student's key area of study and (3) survival skills, which offers a general orientation to the college along with a focus on self-exploration and coping skills. The success skills course is required for most associate degree and some certificate programs (although some students graduate without taking this class) and the survival course is recommended for students who test into basic skills level coursework. Two of three students enrolled in a success course while completing their first 15 credits or within their first semester (Cho and Karp, 2012). Completion of a student success course within the first 15 enrolled credits was positively associated with the three tracked academic outcomes: (1) earning any credits during first year, (2) earning any college-level credits within the first year and (3) persisting into the second year (Cho and Karp, 2012). Overall, a large majority of students (88%) who earned an associate degree within four years had completed one of these courses (Cho and Karp, 2012).

However, long-term positive effects of these courses may be inhibited by pedagogy that lacks a focus on “exposure to new knowledge of required skills and available services; self-awareness allowing for an understanding of when and how to use new skills and knowledge; and opportunity to develop the agency and motivation to act upon needs,” (Karp et al., 2012). Focus groups with students suggest that sessions that target particular programs of study and provide “more than just basic information about SSSP-related issues and services” (Nodine, Jaeger, Venezia & Bracco, 2012, p. 8) are particularly useful. To determine whether disproportionate impact is an issue, colleges would need to explore which students are likely to attend orientation sessions or complete orientation courses, and whether there are differences in how these students do academically when compared to those students who do not receive any form of orientation services.

How can colleges use evidence on disproportionate impact for action planning and improvement of orientation services?

In short, generating and observing data alone is not enough to address any disproportionate impact that you might uncover in your college's orientation services. To fully examine the topic, the data you produce and the analyses you perform based on the guidelines above should be discussed with a diverse group of college stakeholders, including those who work most closely with orientation. We have designed the following questions to help administrators, faculty and researchers structure a conversation about disproportionate impact in the delivery of orientation services that includes (1) determining which questions, data and analysis to pursue and exploring the information you generate; (2) designing a plan of action; (3) implementing a related change process and (4) monitoring and communicating about progress.

Identifying and Exploring the Issue

- How are you currently monitoring disproportionate impact in the delivery of orientation on your campus?
- Who needs to be involved in exploring data to assess and mitigate disproportionate impact in orientation services?
- Reflecting on the sample research questions offered above, what inquiry is most pertinent to your college in terms of mitigating disproportionate impact in orientation?
- Considering the data sources offered above, what information needs to be gathered in order to gain a fuller understanding of the issue and potential ways of reducing the impact on the affected groups of students?
- How might you apply the analyses outlined above at your college?

Planning and Designing Action

- In what ways do your data gathering and analyses highlight areas where disproportionate impact is occurring in orientation?
- Given the evidence, what change(s) are needed to address areas of disproportionate impact in orientation? Which groups of students are likely to be affected or should be targeted by these changes?
- Who else needs to be informed about and/or involved in deciding what changes to make?

Implementing Change

- Who needs to be involved to institute these changes?
- What kind of training or professional development is needed to help administrators, faculty and staff support changes to address disproportionate impact as it relates to orientation?
- What is the most appropriate timeline for implementing the proposed changes?

Monitoring the Impact

- How might you monitor disproportionate impact related to planned changes to orientation policies or practices at your campus?
- How often should available data be examined to note progress or a need for additional changes?
- Who will monitor the impact and communicate the results to related stakeholders?

IMPACT: Counseling and Advising (Education Planning)

Purpose of Counseling and Advisement

“The purpose of counseling and advisement is to address students’ needs with respect to their strengths and areas of improvement and to facilitate a match between the services that a student may need and the resources available on campus and in the community” (California Community College Chancellor’s Office, 2011b, p. 2.10).

In the context of counseling and advising, where is disproportionate impact an issue?

Counseling and advising is critical to helping all students realize their educational goals (see text box, *Purpose of Counseling and Advisement*), but may be particularly vital for those students who arrive at college less academically and/or socially prepared and less aware of how best to navigate the college environment (Karp, O’Gara & Hughes, 2008). A recent study which asked students at 13 California community colleges to share which types of support both inside and outside were most important to their academic success found that only a moderate proportion of students had accessed counseling and advising-related services; about 40 percent of survey respondents had accessed counseling services and 36 percent had an education plan on record (Booth et al., 2013). Why? Many students may not know that such supports are available (Marcus, 2012). However, even students who do know and want to access counseling and advising

services may have limited access to one-on-one counseling due to budget cuts. At many community colleges, a single counselor is available for every 1,700 students (Marcus, 2012). Other students may not know the right questions to ask a counselor to be sure they are taking the appropriate classes and accessing possibly needed and available resources (Karp and Bork, 2012; Nodine et al., 2012). Disproportionate impact could be an issue if certain groups of students are less likely to access these services and/or to complete an education plan, which many students find invaluable to their success (Booth et al., 2013; Nodine et al., 2012).

What research questions can we ask to explore disproportionate impact in counseling and advising?

In recent years, a plethora of studies have linked counseling or academic advising, as well as student support services that focus on affective learning, to student success in college. For example, one statewide study demonstrated that students who receive counseling services are more likely to succeed in their classes (Bahr, 2008). In addition, a national study conducted by ACT linked non-cognitive factors such as social support and academic goals to student retention (Lotkowski, Robbins & Noeth, 2004). These studies and others (Grubb, 2006; Purnell & Blank, 2004; Nodine et al., 2012) highlight the importance of counseling or academic advising to student success and retention in college.

There are a variety of counseling/advising-related access issues that may be explored, including the following:

- Access to pre-enrollment counseling/advising services
- Completion of a Student Education Plan (SEP)
- Utilization of counseling/advising services during the first and subsequent semesters of enrollment
- Academic performance of students who received counseling/advising services

A sample research question relating to access to counseling/advising might include the following:

Sample Research Question: Are certain student groups disproportionately less like to complete a student education plan prior to or during their first semester in college?

What data can be used to explore the issue of disproportionate impact in counseling and advising?

In order to examine whether certain students at your college or district are disproportionately less likely to access and/or benefit from counseling or advising services, you can access student counseling and advising data from the following sources:

- Local student information system
- Chancellor's Office Data on Demand
- Chancellor's Office DataMart

What relevant analyses can be conducted to monitor changes in disproportionate impact as it relates to counseling and advising?

To respond to the Sample Research Question, begin by collecting the information necessary to respond to the research question, which should include, at a minimum, student education plan status and student demographics. It is recommended that you start with a cohort of first-time students who applied for admissions and enrolled in a given term; at a later time, you may wish to expand your population of interest to the larger student population. To determine if access to student educational planning services was equitable across student groups:

- Start with crosstabs of student educational planning status by student gender, ethnicity and age
- Use the 80 percent rule to determine if disproportionate impact has occurred

Determine which groups will serve as the reference groups (majority groups) for your college or district, and calculate access rate ratios for each other group compared to the reference group. The data tables should look similar to the samples provided below.

Sample Table 4a. Student Educational Planning Services Received by Student Gender

Gender	First-Time Fall 2011 Students		Students Receiving Educational Planning Services		Ratio
Female	1,448	51%	724	50%	93%
Male	1,392	49%	752	54%	100%
Total/Overall	2,840	100%	1,476	52%	--

Shaded group represents the reference group

As the table above shows, male students represent the traditional (although not the numerical) majority of fall 2011 first-time students, and 54 percent of these students received educational planning services. The participation rates for female students

exceeded 80 percent of the male participation rate; therefore, there is not sufficient evidence of disproportionate impact for female students.

Sample Table 4b. Student Educational Planning Services Received by Student Ethnicity

Ethnicity	First-Time Fall 2011 Students		Students Receiving Educational Planning Services		Ratio
African American	312	11%	173	55%	102%
American Indian/Alaskan Native	28	1%	14	50%	93%
Asian	227	8%	94	41%	76%
Filipino	85	3%	32	38%	70%
Latino	1,108	39%	609	55%	102%
Multi-Ethnicity	199	7%	97	49%	91%
Pacific Islander	57	2%	26	46%	85%
Other, non-white	142	5%	61	43%	80%
White	682	24%	370	54%	100%
<i>Total/Overall</i>	<i>2,840</i>	<i>100%</i>	<i>1,476</i>	<i>52%</i>	<i>--</i>

Shaded group represents the reference group

Bolded group identifies groups for which disproportionate impact has occurred

Although Latino students comprise the largest percentage of first-time fall 2011 students in the table above, white students serve as the traditional majority or reference group. The student educational plan participation rate for white students is 54 percent, and the participation rate for each other group is compared to this rate. There is evidence of disproportionate impact among Asian and Filipino students, with ratios of 76 percent and 70 percent, respectively, which means that these groups of students were disproportionately less likely than white students to access educational planning services.

Sample Table 4c. Student Educational Planning Services Received by Student Age

Age Group	First-Time Fall 2011 Students		Students Receiving Educational Planning Services		Ratio
Under 18	28	1%	23	82%	149%
18 to 24	2,017	71%	1,109	55%	100%
25 to 29	568	20%	256	45%	82%
30 and over	227	8%	88	39%	71%
<i>Total/Overall</i>	<i>2,840</i>	<i>100%</i>	<i>1,476</i>	<i>52%</i>	<i>--</i>

Shaded group represents the reference group

Bolded group identifies groups for which disproportionate impact has occurred

In the table on page 47, students ages 18 to 24 constitute the largest percentage of first-time fall 2011 students and also serve as the traditional reference group. In comparison to the reference group participation rate of 55 percent, there is evidence of disproportionate impact among students ages 30 and over (ratio of 71 percent). In other words, students ages 30 and over were less likely to access SEP services than traditional-age students. It should be noted that the cell sizes (the number of students) for the 30 to 34, 35 to 39, 40 to 49 and 50 and over age groups were relatively small, and thus were combined into a single larger category.

What are some additional research questions to explore disproportionate impact in counseling and advising?

Below are some additional research questions related to counseling and advising that you may want to consider, depending on the unique policies and issues of importance to your college or district. These questions can be explored using the data sources highlighted in this guide.

- Is any student group disproportionately less likely to access counseling/advising services?
- Are students who receive counseling/advising services more likely to be retained than students who do not receive services?
- Are students who receive educational planning services more likely to succeed in their classes?

What strategies and approaches have colleges successfully implemented to mitigate disproportionate impact in counseling and advising?

Education planning that is supported by a counselor is reported by students as a key factor in their success (Booth et al., 2013). Given that many colleges have had to cut back on the number of counselors, some students use online resources to monitor and track their progress (Booth et al., 2013). In California, many students use [ASSIST.org](https://assist.org) and other degree audit tools such as De Anza's [DegreeWorks](https://www.degreeworks.com), which allows them to determine what courses are required and to monitor their progress toward completing a degree and/or transfer (Nodine et al., 2012) (for additional examples, see text box *Creating a LifeMap*).

Advising and counseling that is integrated with instruction is another approach that has shown some positive effects on students' persistence, at least in the short term. Learning communities that link academic courses with support services such as tutoring,

counseling and student success courses are designed “to give students a chance to form stronger relationships with each other and their instructors, engage more deeply with the integrated content of the courses and access extra support” (MDRC, 2013, para. 2; Weissman et al., 2009). For example, Kingsborough Opening Doors Learning Communities incorporated a semester-long, one-credit “freshman orientation” course that was paired with a basic skills level English course and a major-required academic “content course” along with additional tutoring and counseling (Scrivener, et al., 2008; Sommo, Mayer, Rudd & Cullinan, 2012) for students testing into basic skills level English. Short-term effects associated with the program were positive, including better social integration and engagement, faster completion of the basic skills level English sequence, positive credit accumulation and number of courses completed (Scrivener et al., 2008). However, the impact of the communities on long-term persistence was less certain with only slightly more program versus control group students reenrolling in college two years post-program participation (Scrivener et al., 2008). However, a six-year follow-up study found that students in the program earned more credits on average and were more likely to persistence even for students who tested into basic skills level English at baseline than students who did not participate in the program (Sommo et al., 2012).

Creating a LifeMap

Knowing how to successfully navigating college—the processes, the policies, the resources and the requirements—is an important skill for any student. [Valencia College’s LifeMap](#) is a set of online platforms that help students know “what to do when” in order to complete their career and education goals. Based on “ideal student progression,” (Romano and White, 2012, p. 331) the LifeMap provides support through five key phases of college life: college transition, introduction to college, progression to degree, graduation transition and lifelong learning.

By using LifeMap, students have access to an integrated “system of tools, services, programs and people (faculty and staff) to . . . document, revise and develop [an education] plan,” (Romano and White, 2012, p. 331). The program also “promotes student social and academic integration and education and career planning, as well as acquisition of life and study skills,” (Romano and White, 2012, p. 331). The program is linked to a learning portal called Atlas, which provides a single point of access not only to LifeMap, but to resources that help students explore career and educational options; develop educational goals; manage course schedules and financial aid; email students, faculty and staff; review course homepages; and join online learning communities (Romano and White, 2012).

How can colleges use evidence on disproportionate impact for action planning and improvement of counseling and advising?

In short, generating and observing data alone is not enough to address any disproportionate impact that you might uncover in your college's provision of counseling and advising. To fully examine the topic, the data you produce and the analyses you perform based on the guidelines above should be discussed with a diverse



group of college stakeholders, including those who work most closely with counseling and advising. We have designed the following questions to help administrators, faculty and researchers structure a conversation about disproportionate impact in counseling and advising that includes (1) determining which

questions, data and analysis to pursue and exploring the information you generate; (2) designing a plan of action; (3) implementing a related change process and (4) monitoring and communicating about progress.

Identifying and Exploring the Issue

- How are you currently monitoring disproportionate impact in counseling and advising on your campus?
- Who needs to be involved in exploring data to assess and mitigate disproportionate impact in counseling and advising?
- Reflecting on the sample research questions offered above, what inquiry is most pertinent to your college in terms of mitigating disproportionate impact in counseling and advising?
- Considering the data sources offered above, what information needs to be gathered in order to gain a fuller understanding of the issue and potential ways of reducing the impact on the affected groups of students?
- How might you apply the analyses outlined above at your college?

Planning and Designing Action

- In what ways do your data gathering and analyses highlight areas where disproportionate impact is occurring in counseling and advising?
- Given the evidence, what change(s) are needed to address areas of disproportionate impact in counseling and advising? Which groups of students are likely to be affected or should be targeted by these changes?
- Who else needs to be informed about and/or involved in deciding what changes to make?

Implementing Change

- Who needs to be involved to institute these changes?
- What kind of training or professional development is needed to help administrators, faculty and staff support changes to address disproportionate impact as it relates to counseling and advising?
- What is the most appropriate timeline for implementing the proposed changes?

Monitoring the Impact

- How might you monitor disproportionate impact related to planned changes to counseling and advising policies or practices at your campus?
- How often should available data be examined to note progress or a need for additional changes?
- Who will monitor the impact and communicate the results to related stakeholders?

IMPACT: Follow-Up (Evaluation of Student Progress)

The Purpose of Follow-up

“The student follow-up component of SSSP is concerned with the regular monitoring of student progress. Follow-up is intended to provide for the student and the institution a process that increases the interaction between the student and college so that if intervention is necessary to help ensure student success, it may be rendered in a timely fashion before the student is in an irreparable situation that may result in failure in one or more courses” (California Community College Chancellor’s Office , 2011b, p. 2.16).

In the context of student follow-up services, where is disproportionate impact an issue?

Follow-up services are often designed to help keep students on track so they achieve their educational goals. These services also aid in identifying students who are struggling academically as soon as possible so they can be connected to supports that can help them avoid dropping out (see text box, *The Purpose of Follow-up, on Page 51*). Several conditions may signal that a student is at risk: poor or failing grades in one or more classes, late registration, delays in applying for financial aid and being undecided after several semesters (Cuseo, 2006). Student follow-up may include a wide range of services, such as early alert, intrusive advising services (Tinto, 1993) and mandatory counseling for students placed on academic probation (Scrivener, Sommo & Collado, 2009). Programs like early alert or early warning require that faculty and counselors work together as part of a structured and proactive process to identify and link students to tutoring and any other needed supports (Lynch-Holmes, Troy & Ramos, 2012).

Colleges take many different approaches to recognize these “red flags” including midterm progress reports and course assessments (Kuh et al., 2006). However, midterm reports may come too late for many students (Cuseo, 2006). In addition, these efforts are often further hampered by the sheer volume of alerts that have to be managed, lack of clarity about how best to intervene and monitor students’ progress, lack of faculty members’ buy-in and lack of follow-up by students who are contacted (Cuseo, 2006; Lynch-Holmes, Troy & Ramos, 2012; Pfleging, 2002). If students are ultimately placed on academic probation, some research shows that all is not lost. Probation may offer another critical intervention point where intrusive outreach and support can have positive effects on students’ persistence (Scrivener, Sommo & Collado, 2009). Disproportionate impact may be an issue if certain students groups are less or more likely to be directed to and receive these services that can help improve their success.

What research questions can we ask to explore disproportionate impact in the delivery of follow-up services?

When delivered effectively, specific student follow-up services such as early alert may help identify at-risk students early on in the semester, connect learners with the appropriate resources (Donnelly, 2010) and increase retention of at-risk students (Anderson, 2011). In turn, the examination of equity in student follow-up is a particularly salient issue for community colleges.

There are a variety of studies that can be conducted to examine disproportionate impact as it relates to student follow-up, just as there are a number of services that fall under the student follow-up category. To examine disproportionate impact related to

early alert, a very common follow-up service, one might propose the following research question:

Sample Research Question: Among students who receive early alert services, are certain groups disproportionately less likely to succeed in their classes?

What data can be used to explore the issue of disproportionate impact in delivery of follow-up services?

A variety of data may be accessed to explore disproportionate impact in the provision of student follow-up services, including the following sources:

- Local student information system
- Chancellor's Office Data on Demand
- Chancellor's Office DataMart

All of these sources contain information on student follow-up status and demographics. While these data elements represent a starting point for a disproportionate impact study on follow-up, additional information may be required depending on the research questions that are most appropriate to your institution. Note that follow-up data available via DataMart and Data on Demand are rather generic and do not necessarily refer to a specific follow-up service, such as early alert services or retention programs. For example, if you were interested in examining retention and term GPA among students who received an early alert, you may need local data on early alert to supplement the data obtained from Data on Demand or DataMart.

What relevant analyses can be conducted to monitor changes in disproportionate impact in the delivery of follow-up services?

To respond to the above research question, you will need to start with students who receive early alert services in a given term. To determine the impact of using early alert services on course success:

- Obtain student enrollment data for the term in which follow-up services were received
- Crosstab student success rates by gender, ethnicity and age
- Use the 80 percent rule to identify groups for which disproportionate impact has occurred

Examples of data tables related to this research question are provided on Page 54.

Sample Table 5a. Course Success by Student Gender among Students Who Received Early Alert Services

Gender	Students Receiving Early Alert Services in Fall 2011		Fall 2011 Enrollments	Course Success Rate	Ratio
Female	4,876	59%	11,702	52%	70%
Male	3,388	41%	7,115	74%	100%
<i>Total/Overall</i>	<i>8,264</i>	<i>100%</i>	<i>18,817</i>	<i>61%</i>	<i>--</i>

Shaded group represents the reference group

Bolded group identifies groups for which disproportionate impact has occurred

In the table above, male students represent the traditional majority group among students who received early alert services in fall 2011 and thus serve as the reference group. On average, male students succeeded in nearly three of four (74 percent) of their courses, while female students succeeded in just over half (52 percent) of their courses. The ratio of female success rates to male success rates is 70 percent, which violates the 80 percent rule and provides evidence of disproportionate impact. In other words, among students who received early alert services, female students were disproportionately less likely to succeed in their classes than male students.

Sample Table 5b. Course Success by Student Ethnicity among Students Who Received Early Alert Services

Ethnicity	Students Receiving Early Alert Services in Fall 2011		Fall 2011 Enrollments	Course Success Rate	Ratio
African American	999	12%	2,098	59%	94%
American Indian/Alaskan Native	63	1%	126	58%	92%
Asian	617	7%	1,481	59%	94%
Filipino	143	2%	357	54%	86%
Latino	1,424	17%	2,990	60%	95%
Multi-Ethnicity	427	5%	854	66%	105%
Pacific Islander	72	1%	137	62%	98%
Other, non-white	1,002	12%	2,000	59%	94%
White	3,515	43%	8,774	63%	100%
<i>Total/Overall</i>	<i>8,264</i>	<i>100%</i>	<i>18,817</i>	<i>61%</i>	<i>--</i>

Shaded group represents the reference group

Bolded group identifies groups for which disproportionate impact has occurred

In the table on Page 54, white students represent the largest percentage of students who received early alert services in fall 2011 and serve as the both the numerical and traditional majority or reference group. As the table shows, the success rates for all other ethnic groups were greater than 80 percent of the success rate of the reference group (see ratios above). Thus, there is not sufficient evidence of disproportionate impact by ethnicity.

Sample Table 5c. Course Success by Student Age among Students Who Received Early Alert Services

Age Group	Students Receiving Early Alert Services in Fall 2011		Fall 2011 Enrollments	Course Success Rate	Ratio
Under 18	186	2%	186	52%	81%
18 to 24	4,187	51%	10,886	64%	100%
25 to 29	1,214	15%	2,792	62%	97%
30 to 34	829	10%	1,823	51%	80%
35 to 39	545	7%	981	61%	95%
40 to 49	787	10%	1,496	59%	92%
50 and over	516	6%	652	58%	91%
<i>Total/Overall</i>	<i>8,264</i>	<i>100%</i>	<i>18,817</i>	<i>61%</i>	<i>--</i>

Shaded group represents the reference group

As shown in the table above, students ages 18 to 24 represent the largest proportion of students who received early alert services in fall 2011. These students also represent the traditional majority group and the reference group for all other age groups. The success rates all other age groups equaled or exceeded 80 percent of the rate for students 18 to 24 years of age, indicating there is not sufficient evidence of disproportionate impact by age.

What are some additional research questions to explore disproportionate impact in delivery of follow-up services?

Below are some additional research questions related to student follow-up that you may want to consider, depending on the unique policies and issues of importance to your college or district. These questions can be explored using the data sources highlighted in this guide.

- Are certain groups of students less likely to be identified by early alert programs?
- Are certain groups of students more likely to be placed on academic probation?

- Are students who receive follow-up services more likely to be retained in the subsequent semester than students who do not receive follow-up services?
- Are certain groups of students more likely to respond to an early alert by accessing services?

What strategies and approaches have colleges successfully implemented to mitigate disproportionate impact in the delivery of follow-up services?

Three key steps are associated with developing a successful and effective early alert system: using data to identify students, defining a clear intervention process and creating a system for providing students and faculty with feedback (Lynch-Holmes, Troy & Ramos, 2012). The target population should be those students who exhibit behaviors that are associated with lower persistence (e.g., dropping classes, low GPA, poor attendance). A network of both referrers and responders are necessary to create the safety net that many students need (Lynch-Holmes, Troy & Ramos, 2012). Plans for remediation should have reasonable and clear steps for a student to take to be successful along with a process for looping back to the faculty or counselors who referred the students to let them know of the plans to help the referred student be successful (Lynch-Holmes, Troy & Ramos, 2012) (see text box on Page 56, *Early Alert for At-Risk Students at Lake Land College*).

Another common strategy is to refer academically at-risk or struggling students to success courses, which often teach study and time management skills and help students explore their own learning styles along with career and educational goals. Research suggests that these students can benefit from such courses (Cho and Karp, 2012; Zeidenberg, Jenkins & Calcagno, 2007). In California, Chaffey College offers one example of how to address these issues. When faced with a growing number of students on academic probation, Chaffey administrators discovered that few of these students were seeking out recommended counseling when contacted about their status. In an effort to better support these students, the college designed a program where those on probation are required to enroll in a three-credit college student success course that mandates the use of available tutoring centers. There, participants receive additional academic assistance and guidance. The program has had positive effects on credits earned, GPA and movement off of probation (Scrivener, Sommo & Collado, 2009).

Case Study: Early Alert for At-Risk Students at Lake Land College

Since fall 2002, Lake Land College has implemented a program to identify students who might be at risk of dropping or stopping out as soon as possible. High risk students are defined as those with “low test scores, poor attendance, incomplete homework assignments, or poor comprehension” (Illinois Community College System, 2009, p. 49). Faculty use an electronic early alert system to submit a report, which is reviewed by a program coordinator who is responsible for reaching out to the identified student to discuss the faculty member’s concerns and to offer various forms of academic support. The coordinator’s recommendations can be viewed by the referring faculty members who can also update the recorded information to highlight students’ progress or to note where more support might be needed. An initial evaluation of the program indicated that students who were served as part of the early alert program had higher cumulative GPAs, better retention and high average credit hours than a comparison group of students (Illinois Community College System, 2009).

How can colleges use evidence on disproportionate impact for action planning and improvement of follow-up services?

In short, generating and observing data alone is not enough to address any disproportionate impact that you might uncover in your college’s provision of student follow-up services. To fully examine the topic, the data you produce and the analyses you perform based on the guidelines above should be discussed with a diverse group of college stakeholders, including those who work most closely with follow-up services and programs. We have designed the following questions to help administrators, faculty and researchers structure a conversation about disproportionate impact in student follow-up that includes (1) determining which questions, data and analysis to pursue and exploring the information you generate; (2) designing a plan of action; (3) implementing a related change process and (4) monitoring and communicating about progress.

Identifying and Exploring the Issue

- How are you currently monitoring disproportionate impact in student follow-up on your campus?
- Who needs to be involved in exploring data to assess and mitigate disproportionate impact in student follow-up?
- Reflecting on the sample research questions offered above, what inquiry is most pertinent to your college in terms of mitigating disproportionate impact in student follow-up?
- Considering the data sources offered above, what information needs to be gathered in order to gain a fuller understanding of the issue and potential ways of reducing the impact on the affected groups of students?
- How might you apply the analyses outlined above at your college?

Planning and Designing Action

- In what ways do your data gathering and analyses highlight areas where disproportionate impact is occurring in student follow-up?
- Given the evidence, what change(s) are needed to address areas of disproportionate impact in student follow-up? Which groups of students are likely to be affected or should be targeted by these changes?
- Who else needs to be informed about and/or involved in deciding what changes to make?

Implementing Change

- Who needs to be involved to institute these changes?
- What kind of training or professional development is needed to help administrators, faculty and staff support changes to address disproportionate impact as it relates to student follow-up?
- What is the most appropriate timeline for implementing the proposed changes?

Monitoring the Impact

- How might you monitor disproportionate impact related to planned changes to student follow-up policies or practices at your campus?
- How often should available data be examined to note progress or a need for additional changes?
- Who will monitor the impact and communicate the results to related stakeholders?

IMPACT: Prerequisites

The Purpose of Prerequisites

“Prerequisites are conditions of enrollment that students are required to meet prior to enrollment in particular courses and programs. The assignment of a prerequisite to a course signifies that the courses skills, or body of knowledge described in the prerequisite are essential to the success of the student in that course and that it is highly unlikely that a student who has not met the prerequisite will receive a satisfactory grade in the course for which the prerequisite has been established. A single test score (or any other single assessment measure) cannot be used as a prerequisite” (California Community College Chancellor’s Office 2011b, p. 2.19).

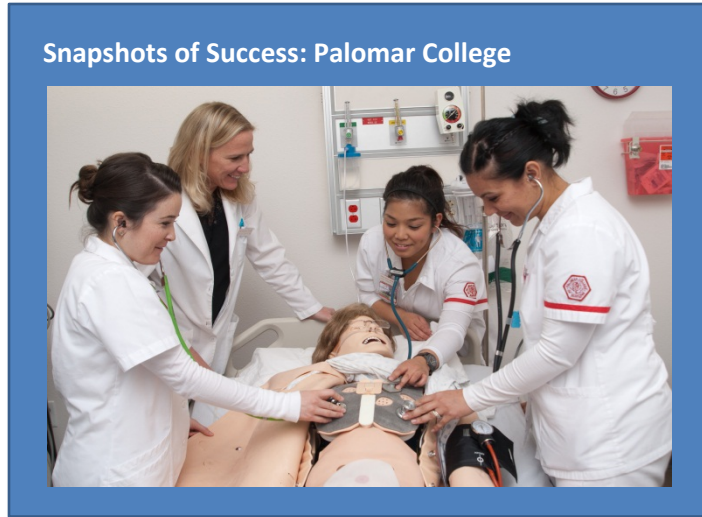
In the context of prerequisites, where is disproportionate impact an issue?

Prerequisites are designed to ensure that more students are prepared to successfully move through a sequence of courses related to a field of study. While a worthwhile goal, prerequisites may inadvertently keep certain groups of students from being able to advance in their studies. For example, students who are academically underprepared may struggle to complete necessary prerequisites to advance along the sequence of courses required to complete a degree and/or transfer without additional support. To ensure that prerequisites do not have an adverse impact on students, validation of these courses is required to show “that a prerequisite is necessary for success in a particular course [and] that a student who has not met the prerequisite is highly unlikely to obtain a satisfactory grade in the course [§58106 (e)]” (Meehan, et al., n.d) (see text box, *The Purpose of Prerequisites*).

Several colleges are using prerequisite validation guidelines (California Community College Chancellor’s Office, 2012b) to investigate whether certain student groups are more likely to (1) be denied access to degree completion or transfer pathways or (2) perform differently in the target course as a result of prerequisite requirements. In California, Palomar College, Fresno City College and City College of San Francisco have all performed related research.

Palomar College conducted a study to validate the potential effects of prerequisites on success in its Associate Degree of Nursing program. The introduction of a cut score to admit students led to increases in the overall student success rate, “but there [was] considerable disproportionate impact to many groups of students,” (Palomar College,

2005, p. 6). If the cut score had been implemented to decide admission for previous students, nearly one in four of the previous students would not have been accepted into the program and nearly three out of four students who would have been rejected successfully completed the program (Palomar College, 2005). Analysis of students'



success by certain demographic characteristics (e.g., gender, age and ethnicity) indicated that Asian, Latino, 'other,' male and students between ages 18 and 25 and ages 26 and 45 would have been disproportionately impacted. This result means that students in these groups would have

been more likely to be rejected from the program. However, these findings must be interpreted with caution due to small sample sizes. In general, the study's authors conclude, "Implementing [the California Community College Chancellor's Office's ADN Prerequisites] model may not serve to satisfactorily increase the completion rate of nursing students at Palomar College without widespread potential disproportionate impact," (Palomar College, 2005, p. 12).

Fresno City College examined the impact of a math prerequisite on a geology course and found that success in a particular math course was associated with a higher success rate in the subsequent geology course (Fresno City College, 2012). However, a disproportionate impact analysis indicated that two groups of students, those 19 years or younger or 30 to 34 years old, were less likely to be successful if required to complete the prerequisite math course (Fresno City College, 2012).

Similarly, an examination of a transfer-level English prerequisite for history courses at City College of San Francisco (CCSF) found:

In terms of disproportionate impact, the implementation of mandatory prerequisites may have a greater effect on African-American and Latino/a students because they place lower than whites and Asians. As for differential validity, the validity of these prerequisites to predict success in history may well be different from native-speaking to ESL students. It is often the case that ESL

students (who make up 20 percent of CCSF's credit population) outperform native speakers in non-English classes at equivalent remedial levels of English. This is because of what levels below transfer means for the two groups. Native speakers at three levels below transfer, for example, are not academically prepared. ESL students three levels below transfer means they have a substantial command of a language that is not their own. Given the attrition rates of students as they move through remediation sequences, requiring ESL students to reach transfer levels of ability before taking GE classes where their increase in success in these classes is minimal, may be simply putting unnecessary road blocks in their way (Spurling, 2009, p. 7).

These studies highlight the importance of examining disproportionate impact of prerequisites to ensure that this policy does not inhibit some students from being able to access and be successful in certain courses of study.

What research questions can we ask to explore disproportionate impact as it relates to the issue of prerequisites?

The California Community Colleges prerequisite validation guidelines were revised in 2011 (ASCCC, 2011) to reflect both content analysis and statistical validation components. The statistical validation portion of the process requires a disproportionate impact analysis, in which the goal is to determine if the access (or success) of any student group is differentially impacted (or predicted) by the implementation of the prerequisite.

The primary research question pertaining to access in the content of prerequisites may consist of the following:

Sample Research Question: Is any student group's access to the target course (e.g., Psychology 101) adversely impacted by the prerequisite (e.g., English 101 eligibility)?

What data can be accessed to explore the issue of prerequisites?

To access the information needed for a prerequisite disproportionate impact analysis, you may obtain data from your college's or district's local student information system. Since some prerequisites factor in reading, writing, and/or math assessment level information, the Chancellor's Office DataMart and Data on Demand are not viable data sources for prerequisite disproportionate impact analysis.

Note that a prerequisite disproportionate impact analysis is best conducted in the larger context of a prerequisite validation study, in which other factors, such as content review, enrollment impact and statistical validity, are also examined.

What relevant analyses can be conducted of disproportionate impact as it relates to prerequisites?

To examine disproportionate impact related to a prerequisite, we suggest beginning with a focus on the issue of access. The following steps outline the process of examining disproportionate impact for a proposed English 101 eligibility prerequisite to Psychology 101:

- Access student enrollment and grade data for the target course, as well as prior enrollment and grade data for the prerequisite course and any related or equivalent assessment/placement levels. You will also need demographic data for students enrolled in the target course.
- Access at least two primary terms of data (fall and/or spring) for the target course (course for which a prerequisite is being considered); if the target course enrolls a relatively small number of students each year, you may need to include additional terms of data.
- Identify the students who met the prerequisite skill level (i.e., English 101 eligibility) through assessment/placement, course completion, or exemption prior to enrolling in the target course.
- Categorize these students as “skill level attained;” categorize all other students as “skill level not attained.”
- Generate crosstabs of prerequisite skill level attainment by gender, ethnicity and age.
- Use the 80 percent rule to identify student groups for which disproportionate impact has occurred.

Sample tables illustrating crosstabs of prerequisite skill level attainment by gender, ethnicity and age are provided on Page 63.

Sample Table 6a. Psychology 101 Prerequisite Writing Skill Level Attainment by Gender (Fall 2011 and Spring 2012 combined)

Gender	Enrolled in Psychology 101		Prerequisite Skill Level Attained		Ratio
Female	1,562	64%	812	52%	121%
Male	878	36%	378	43%	100%
<i>Total/Overall</i>	<i>2,440</i>	<i>100%</i>	<i>1,190</i>	<i>49%</i>	<i>--</i>

Shaded group represents the reference group

In the table on page 62, male students represent the traditional (but not the numerical) majority group, with a prerequisite skill level attainment rate of 43 percent. Female students had a prerequisite skill level attainment rate of 52 percent, equaling 121 percent of the rate for male students. Thus, using the 80 percent rule, there is not sufficient evidence of disproportionate impact among female students.

Sample Table 6b. Psychology 101 Prerequisite Writing Skill Level Attainment by Ethnicity (Fall 2011 and Spring 2012 combined)

Ethnicity	Enrolled in Psychology 101		Prerequisite Skill Level Attained		Ratio
African American	242	10%	106	44%	77%
American Indian/Alaskan Native	48	2%	20	42%	74%
Asian	268	11%	134	50%	88%
Filipino	73	3%	34	47%	82%
Latino	610	25%	238	39%	68%
Multi-Ethnicity	240	10%	130	54%	95%
Pacific Islander	50	2%	29	58%	102%
Other, non-white	97	4%	37	38%	67%
White	812	33%	462	57%	100%
<i>Total/Overall</i>	<i>2,440</i>	<i>100%</i>	<i>1,190</i>	<i>49%</i>	<i>--</i>

Shaded group represents the reference group

Bolded rows identify groups for which disproportionate impact has occurred

As the above table shows, white students represent the largest percentage of students enrolled in the target course, Psychology 101, and also serve as the traditional majority or reference group. The prerequisite skill level attainment rate for white students is 57 percent, and the attainment rate for all other groups is compared to this rate to produce the ratio. As the table illustrates, there is evidence of disproportionate impact among African-American students, Latino students, and students identified as “Other, non-white.” The skill level attainment rates for these three groups were lower than 80 percent of the rate of the reference group (77 percent, and 68 percent, and 67 percent, respectively). Put another way, these three groups of students are disproportionately less likely than white students to meet the prerequisite skill level prior to enrolling in Psychology 101. This means that these groups of students may be adversely impacted by the implementation of the prerequisite. It should be noted that, using the 80 percent rule, there is also evidence of disproportionate impact among American Indian/Alaskan Native students; however, this group represents a particularly small number of students and a very small proportion of the overall population of interest. Thus, figures for these students may not be representative and should be interpreted with caution.

Sample Table 6c. Psychology 101 Prerequisite Writing Skill Level Attainment by Age (Fall 2011 and Spring 2012)

Age	Enrolled in Psychology 101		Prerequisite Skill Level Attained		Ratio
Under 18	24	1%	12	50%	102%
18 to 24	1,537	63%	758	49%	100%
25 to 29	342	14%	120	35%	71%
30 to 34	171	7%	101	59%	120%
35 to 39	171	7%	84	49%	100%
40 to 49	122	5%	77	63%	129%
50 and over	73	3%	38	52%	106%
<i>Total/Overall</i>	<i>2,440</i>	<i>100%</i>	<i>1,190</i>	<i>49%</i>	<i>--</i>

Shaded group represents the reference group

Bolded rows identify groups for which disproportionate impact has occurred

In the table above, students ages 18 to 24 represent the numerical and traditional majority, with a prerequisite skill level attainment rate of 49 percent. As the table shows, there is evidence of disproportionate impact among students between 25 and 29 years of age (ratio of 71 percent). This indicates that these students are less likely than traditional-age college students to meet the prerequisite skill level for Psychology 101.

In addition to determining if a particular student group is likely to be adversely impacted by a prerequisite, it is important to determine whether attainment of the prerequisite skill level over-predicts or under-predicts performance in the target class for specific groups of students. Note that this type of analysis, differential prediction, may require the assistance of your college's research office, as differential prediction studies involve some rather complex analyses.

What are some additional research questions to explore disproportionate impact in prerequisites?

Understanding the effects of prerequisites requires an examination of data about students' access to and success in relevant courses before and after the implementation of the prerequisites. Below are some additional research questions related to prerequisites that you may want to consider, depending on the unique policies and issues of importance to your college or district. These questions can be explored using the data sources highlighted in this guide.

- Before the prerequisite has been implemented:
 - Which student groups are enrolling in the proposed prerequisite and target course?
 - Which student groups are successfully completing the proposed prerequisite and target course?
- After the prerequisite has been implemented:
 - Does the student population enrolling in the target course differ significantly pre- and post-prerequisite?
 - Among students who meet the prerequisite skill level, are certain student groups less likely to succeed in the course?

What strategies and approaches have colleges successfully implemented to mitigate disproportionate impact in prerequisites?

Mandatory co-requisites and accelerated pathways are two strategies that may help ensure that some students are not negatively impacted by the implementation of prerequisites. Particularly for students who test into basic skills level coursework, “shortening developmental sequences and mainstreaming upper level developmental students into college-level courses with mandatory supports” (Community College Research Center (CCRC), 2013, p. 11) have been shown to increase students’ course and sequence completion and overall persistence (Cho, Kopko & Jenkins, 2012; Edgecombe, 2011; Edgecombe, Xu, Barragan & Jaggars, 2012) (see text box on Page 66, *Chabot College’s Accelerated English Curriculum*). Registration for mandatory co-requisites such as supplemental labs and participation in additional tutoring when students sign up for basic skills level courses (Collins, 2009; Edgecombe, 2011) may provide the additional support necessary for success. These concurrent and often credit-bearing courses help students accelerate through basic skills level classes and this approach often results in better academic outcomes (Collins, 2009; Edgecombe, 2011). Other colleges have designed accelerated programs where the basic skills level content is compressed into fewer courses as a way to more quickly prepare students for college-level coursework (Edgecombe, Xu, Barragan & Jaggars, 2012; Hern, 2011) or the first half of the semester is one course and the second half of the semester is a separate, more advanced course (Ventura College, 2012).

Case Study: Chabot College's Accelerated English Curriculum

"Students who are required to complete several levels of basic skills courses are less likely to earn a degree and/or credential (Bailey, 2009). To help accelerate students into college-level courses, Chabot College has redesigned its basic skills English curriculum to allow students regardless of their Accuplacer (assessment) test score to self-place into a four-credit compressed reading and writing course that is one level below college-level English (Hern, 2011). This course allows students to practice college-level reading and critical and analytic thinking and writing (Hern, 2011). Students also have the option of taking a two-semester non-accelerated sequence. Across the board, research shows that students in the accelerated course regardless of race or ethnicity are more likely to complete the basic skills level course and enroll in and complete college-level English within three years if they take the accelerated course when compared to those students that completed the two-semester non-accelerated course sequence (CCRC, 2013; Edgecombe, Xu, Barragan & Jaggars, 2012; Hern, 2011). With the likelihood of fewer exit points, the accelerated courses create a structure that limits the places where students might be a likely to drop out (Hern, 2011). For more information about this curriculum and acceleration in general, visit the [California Acceleration Project](#).

How can colleges use evidence on disproportionate impact for action planning and improvement of prerequisites?

In short, generating and observing data alone is not enough to address any disproportionate impact that you might uncover in your college's implementation of prerequisites. To fully examine the topic, the data you produce and the analyses you perform based on the guidelines above should be discussed with a diverse group of college stakeholders, including those who work most closely with the prerequisites approval process, including faculty who teach both the target and prerequisite courses. We have designed the following questions to help administrators, faculty and researchers structure a conversation about disproportionate impact in prerequisite implementation that includes (1) determining which questions, data and analysis to pursue and exploring the information you generate; (2) designing a plan of action; (3) implementing a related change process and (4) monitoring and communicating about progress.

Identifying and Exploring the Issue

- How are you currently monitoring disproportionate impact in the implementation of prerequisites on your campus?
- Who needs to be involved in exploring data to assess and mitigate disproportionate impact in the implementation of prerequisites?
- Reflecting on the sample research questions offered above, what inquiry is most pertinent to your college in terms of mitigating disproportionate impact in the implementation of prerequisites?
- Considering the data sources offered above, what information needs to be gathered in order to gain a fuller understanding of the issue and potential ways of reducing the impact on the affected groups of students?
- How might you apply the analyses outlined above at your college?

Planning and Designing Action

- In what ways do your data gathering and analyses highlight areas where disproportionate impact is occurring in the implementation of prerequisites?
- Given the evidence, what change(s) are needed to address areas of disproportionate impact in implementation of prerequisites? Which groups of students are likely to be affected or should be targeted by these changes?
- Who else needs to be informed about and/or involved in deciding what changes to make?

Implementing Change

- Who needs to be involved to institute these changes?
- What kind of training or professional development is needed to help administrators, faculty and staff support changes to address disproportionate impact as it relates to prerequisites?
- What is the most appropriate timeline for implementing the proposed changes?

Monitoring the Impact

- How might you monitor disproportionate impact related to planned changes to prerequisites policies or practices at your campus?
- How often should available data be examined to note progress or a need for additional changes?
- Who will monitor the impact and communicate the results to related stakeholders?

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